

TOWN OF SOMERS REQUEST FOR PROPOSALS

Fire Training Area Waterline and Fire Hydrant

The Town of Somers is currently seeking bids to install a new waterline and fire hydrant in the Fire Training area on the west side of the Fire Department located at 400 Main Street.

Bids will be received electronically by Todd Rolland, Director of Public Works, at trolland@somersct.gov until 11:00 AM Wednesday, July 14, 2021. No bids will be accepted after the said date and time.

Bids will be reviewed and posted on the Town of Somers website at www.somersct.gov by 5:00 PM, Wednesday, July 21, 2021. Bid results will be posted on the Town's website, and all vendors that submitted bids will be emailed bid results.

The Town of Somers hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority, and disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and that they will not be discriminated against on the grounds of race, color, national origin or sex in consideration for an award.

Prospective bidders shall examine the "Instructions to Bidders" and comply strictly with the conditions and instructions contained therein.

The Town of Somers reserves the right to accept any bid or part of bids, reject any or any part of the bids, waive any formalities or informalities in the bidding process, and award the bid deemed to be in the best interest of the Town.

All bidders are required to inform themselves fully of the conditions relating to the construction and labor under which the work will be or is now being performed, and the contractor shall employ, as far as possible, such methods and means in the carrying out of this work as will not cause interference with any other contractor.

INSTRUCTIONS TO BIDDERS

1. INTRODUCTION

The Town of Somers is soliciting bids for the project named above. If there are any conflicts between the instructions in these Standard Instructions to Bidders and any other bidding document(s), these Standard Instructions to Bidders shall prevail.

2. KEY EVENT DATES

Advertisement for Invitation to Bid:	June 30, 2021
Electronic Bid Due Date	July 14, 2021 by 11:00 A.M.
Review and posting of all bids received	July 21, 2021, by 5:00 PM

3. PREPARATION OF PROPOSALS

- Proposals must be made on the forms provided herein. All spaces in the Bid Proposal must be filled in correctly.
- The Bidder must present the prices for which they propose to complete each item of the work contemplated. The Bidder shall sign his Proposal; if the Bid Proposal is made by a firm, partnership, or corporation, the Bid Proposal must be signed by an official of the firm, partnership, or corporation that has the authorization to sign contracts and must include the business address and business telephone number, partnership, or corporation, failure to do so may disqualify the bid.
- The Town of Somers is not liable for any cost incurred for the preparation of proposals or submission of samples by the firms submitting proposals for the work requested in this bid document or request for proposals.
- Corrections and/or modifications to bid proposals received after the closing time specified will not be accepted.
- Each Bid Proposal must be submitted electronically and marked in the subject line "Fire Training Area Waterline and Fire Hydrant."

4. BID SUBMISSION INSTRUCTIONS

Please submit the completed bid to Todd Rolland, Director of Public Works, at trolland@somersct.gov

The inability to meet any specified requirement(s) must be stated in writing and attached to the bid.

5. BID WITHDRAWAL

Bidders may withdraw their proposals at any time prior to the bid opening date. No Bidder shall withdraw, cancel or modify their proposal for a period of sixty (60) days after the bid opening.

6. BIDDER QUALIFICATIONS

- In determining a bidder's qualifications, the Town of Somers may consider a contractor's record in the performance of any contracts for similar work into which they may have previously entered.
- The Town expressly reserves the right to reject the bid of any bidder if it is disclosed that such bidder, in the opinion of the Town, has not properly performed such contracts or has habitually, and without just cause, neglected the payment of bills or has otherwise disregarded his obligations to subcontractors, suppliers, state or local codes, personnel or employees of subcontractors.
- The Town may make such investigation as they deem necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish all such information and data for this purpose as the Town may request. The Town reserves the right to reject any bid if the evidence

submitted by or the investigation of such bidder fails to satisfy the Town that such bidder is appropriately qualified or that such bidder misrepresented material facts in the bid documents.

7. DISQUALIFICATION OF BIDDERS

- More than one proposal from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one proposal for the same work will cause the rejection of all proposals in which such Bidder is interested.
- Any or all proposals in which such Bidder is interested will be rejected if there is a reason for believing that collusion exists among the Bidders, and all participants in such collusion will not be considered in future proposals for the same work.
- Proposals in which the prices are obviously unbalanced may be rejected. No Contract will be awarded except to competent Bidders capable of performing the class of work contemplated.

8. PAYMENT

- In consideration of the faithful performance by the Bidder of all covenants, promises, and agreements contained herein, agrees to pay the Bidder for the full completion by them of the work embraced in this Contract, within (30) Thirty Days of the receipt of the invoice.
- Bid prices will be considered as NET if no discount is shown.
- The successful bidder shall submit invoices to the following address:

Town of Somers
Department of Public Works
93 Egypt Road
Somers, CT 06071

9. BID ACCEPTANCE

- Bidders are to list their bids on the appropriate attached sheet. Bidders may attach a letter of explanation, but a clear notification should be made on the standard bid sheets at the appropriate point of explanation that there is a letter of explanation is attached.

10. TAX EXEMPTIONS

- The Town of Somers is exempt from Federal Excise Taxes and Connecticut Sales and Use Taxes. Bidders shall avail themselves of these exemptions.

11. CARE AND PROTECTION OF PROPERTY

- The Successful Bidder shall take particular care to avoid damages to all private and public property and to private or public improvements within the Town's right of way.
- The Successful Bidder shall make good any damages to public or private property at their own expense and to the satisfaction of the Town. There shall be no additional compensation from the Town for the repair or restoration of damaged property or vehicles owned by or caused by the successful bidders' work.

12. AWARD

- The Town of Somers reserves the right to award this contract or not, accept or reject any or all bids to best serve its interests, or to hold the bids for sixty (60) days before a decision is made. The Town reserves the right to reject any and all bids (or any part thereof), waive defects in proposals or accept any proposal deemed to be in its best interest.

13. INSURANCE

The bidder awarded this bid must provide a current Certificate of Insurance to the Chief Financial Officer prior to commencement of work, with the following:

- a) Liability limits for bodily injury and personal injury, \$1,000,000 per occurrence.
- b) Liability limits for property damage including that caused by motor vehicles, \$1,000,000.
- c) Contractual liability, \$1,000,000 per occurrence.
- d) Owner's protective liability, \$1,000,000 and property damage, \$1,000,000 per occurrence.
- e) Workers Compensation, as required by Connecticut State Statutes.
- f) The "Town of Somers" is to appear as an additional insured on all Certificates of Insurance.
- g) All insurance is to be provided by a company authorized to issue such insurance in the State of Connecticut.
- h) All insurance may not be canceled or modified without sixty (60) days written notice by registered U.S. Mail to Chief Financial Officer, Town of Somers 600 Main Street, Somers, Connecticut 06071.

14. NONDISCRIMINATION IN EMPLOYMENT

- The Town of Somers is an Equal Opportunity Employer. The successful bidder shall agree and warrant that, in the performance of this contract, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, sex, religion, or national origin in any manner prohibited by State, Federal, County, or Municipal law.

SCOPE OF WORK

DESCRIPTION

The work consists of furnishing all supervision, labor, tools, equipment and materials necessary to perform all operations in connection with the installation of a new fire hydrant in the fire training area located at 400 Main Street, Somers, CT 06071. It is the responsibility of the successful bidder to insure no damage to private property or passing vehicles is caused from the work or workers.

SPECIFICATION

1. All work shall comply with the Connecticut Water Company's 2021 Water Main Specifications and Standard Details (attached).
2. Shut-off valve installed 1-pipe length before the fire hydrant so that maintenance can be performed without needing to operate CT Water's valve near the road.
3. Fire hydrant needs to be CT Water spec: Mueller Super Centurion 250 A423, Open Left, and Red.
4. Class 52 D.I.P. is required – does not need to be poly wrapped.
5. 6" line and hydrant.
6. Field-lok gaskets are required on two joints on both sides of all fittings and 2 joints before fire hydrant (3 pipe lengths restrained).
7. Mega-lug restraints are required on all fittings and fire hydrant.
8. Thrust block is required behind tap on 12" water main in Main Street, on bends, and behind fire hydrant.
9. CT Water will perform the tap into the 12" water main on Main Street (Tap Sleeve and Gate Valve). Contractor is responsible for coordination with CT Water, excavation, restoration, and providing support to CT Water's tap crew.
10. Contractor is responsible for obtaining all applicable permits for work on Main Street (Rt. 190) including Connecticut Department of Transportation Encroachment Permit. CT DOT District 1 office (860) 258-4601: <https://portal.ct.gov/DOT/Office-of-Construction/District-1>
11. Contractor is responsible for traffic protection during work on Main Street. Please contact the Somers Police Department for more information, (860)749-4955, police@somersct.gov.

Town of Somers
BID PROPOSAL SHEET

Fire Training Area Waterline and Fire Hydrant

Under penalty of perjury and other remedies available to the Town of Somers, the undersigned certifies this bid is submitted without collusion, and all responses are true and accurate. If awarded this bid, it is agreed this forms a contractual obligation to provide services at the dollar amount specified in this Bid Form, subject to and in accordance with all instructions, bidding, and contract documents, including any addenda, which are all made part of this bid.

\$ _____
Proposal Total

Signature of Authorized Person

Date

Printed Name of Authorized Person

Company Title of Authorized Person

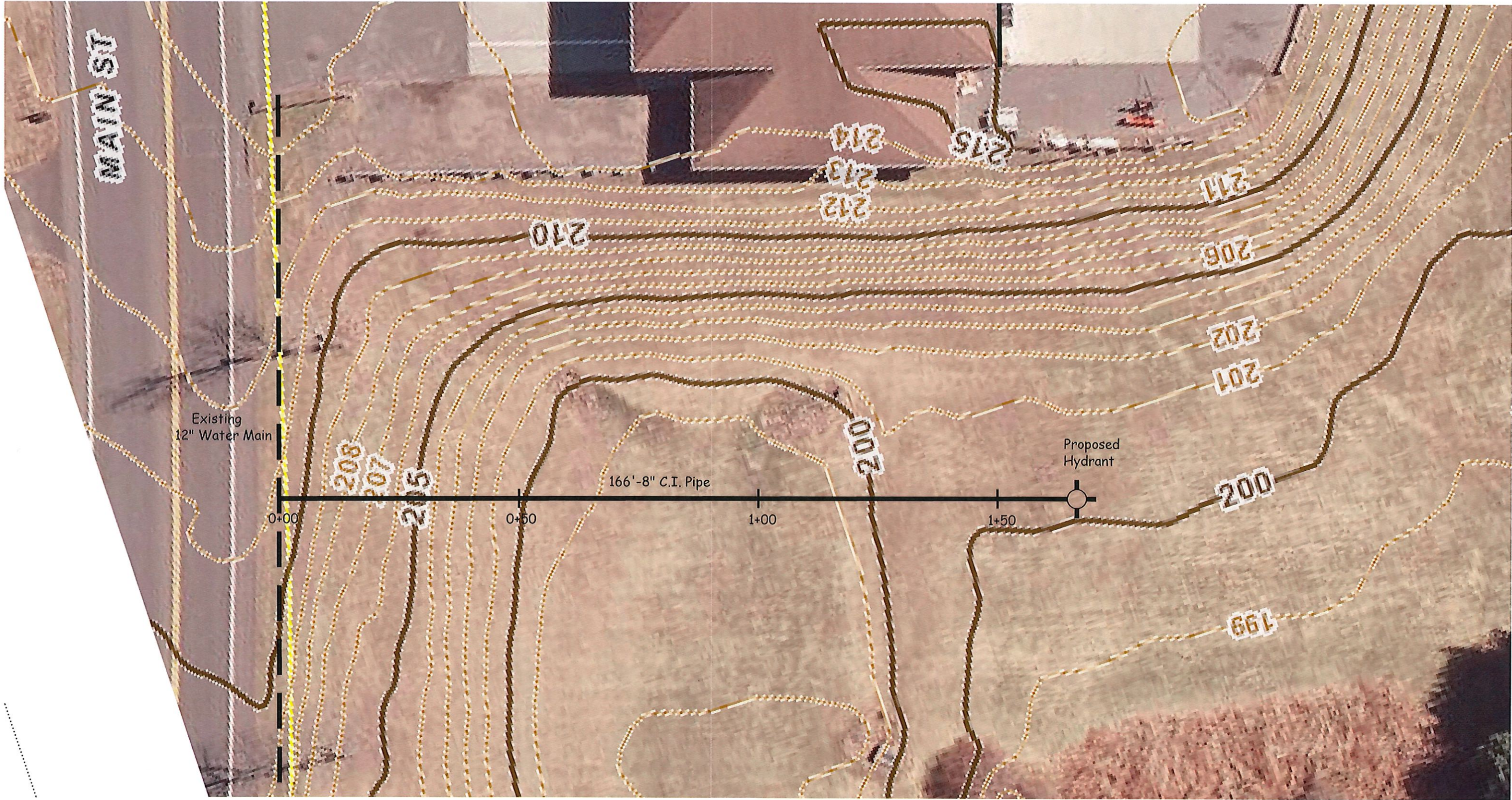
Name of Company

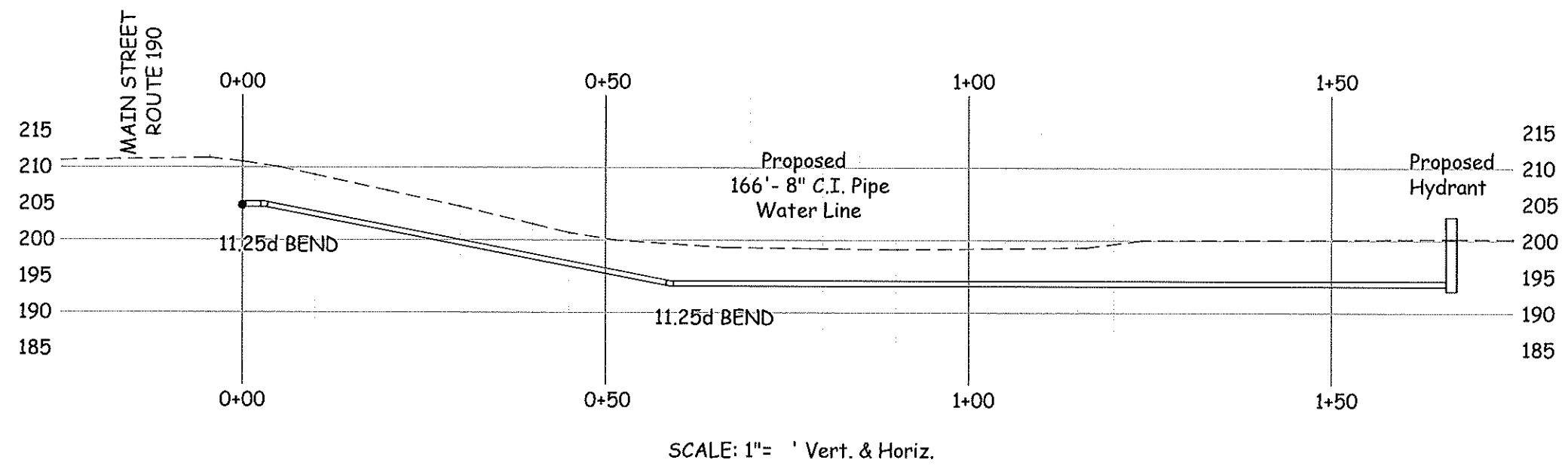
Address of Company

City, State, and Zip Code

Telephone Number

E-Mail







**THE CONNECTICUT WATER COMPANY
SPECIFICATIONS FOR
TRENCHING, BACKFILLING AND INSTALLING
DUCTILE IRON WATER MAINS AND APPURTENANCES – GENERIC
Revised 06/2021**

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SECTION I. **GENERAL CONDITIONS**

DEFINITION OF TERMS

The word "CWS" or "COMPANY" is used to designate Connecticut Water Services, whose principal place of business is at Clinton, Connecticut, or its duly authorized representatives for whom the work is to be performed. The word "Contractor" is used to designate the party or parties contracting or agreeing to perform the work or his or their heirs, executors, administrators, successors or assigns.

The word "Inspector" or "Engineer" refers to the person appointed by CWS to inspect the work and shall extend to and include any assistant whom he may designate.

The word "Work" is used to designate the work, materials and things required to be done, furnished or performed by the Contractor under the specifications.

Wherever the words "directed", "required", "performed", or words of like import are used, it shall be understood that the direction, requirement or permission of CWS is intended, and similarly the words "approved", "acceptable", "satisfactory" or words of like import shall mean approved by or acceptable or satisfactory to CWS.

WORK TO BE DONE

The work to be done includes (except as here-in-after otherwise specified) furnishing all materials, labor, tools, plant and equipment required for receiving, inspecting, hauling, distributing, installing, testing and disinfecting the ductile iron water pipes and appurtenances including valves, fittings, hydrants, excavation and backfill; removing and replacing pavements, proper retirement/abandonment-in-place of existing mains, all as shown on the drawings, mentioned in the specifications or ordered by CWS, complete in every detail, ready for operation.

MATERIALS MANAGEMENT

The Contractor will order, schedule delivery, receive, unload and store all ductile iron water pipe, fittings, valves, valve boxes, tapping sleeves, joint restraints, fire hydrants, chlorine tablets, polyethylene wrap, service line copper and brass, curb boxes, marking tape, etc., and all other materials required for completion of the project. The Contractor shall procure all materials necessary for completion of the project (in accordance with CWS Purchasing Standards), schedule delivery, unload and store the materials until needed for the project. Certain items may be procured directly by CWS from designated suppliers with the contractor handling those items as indicated above. Upon delivery to the project or storage site the Contractor is responsible for the safe keeping of all delivered materials.

LOCATION OF THE WORK

The work is located in public streets, easements, right of way, or authorized property as approved by CWS.

PERMITS AND BONDS

The Contractor will be responsible for obtaining and paying for all the necessary Highway and local permits, unless otherwise obtained by CWS.

The Contractor shall obtain the necessary State of Connecticut D.O.T. Permit Bond when working within the State Highway Right-of-Way.

SUPERVISION OF WORK

The Contractor shall be solely responsible for supervision of the Work, shall give the Work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with the Engineer in every possible way.

At all times, the Contractor shall have as his representative on the site a superintendent reasonably acceptable to the Engineer and adequately licensed for the installation of water main, capable of reading and thoroughly understanding the Drawings, Specifications and other Project Documents, with full authority to execute the directions of the Engineer without delay and to implement all safety rules, precautions and programs required and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the site without the prior written consent of the Engineer. If, in the opinion of the Engineer, the superintendent or any successor proves unacceptable, CWS shall give written notice and the Contractor shall replace the superintendent reasonably acceptable with another person approved by the Engineer; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the work or for implementation of all safety rules, precautions and programs required.

Such superintendent or other representative shall also be responsible for insuring that each of Contractor's agents, servants, employees and subcontractors observes and complies with all safety rules, precautions and programs required under the "Health, Safety and Protection" and "Safety Compliance" Sections of the General Conditions.

In the event the Contractor does not meet the requirements of the Engineer, the Engineer reserves the right to stop work for reasons set forth above. The Contractor shall be responsible for any additional costs or delays resulting from such a stoppage of work.

COMPLIANCE WITH LAWS

The Contractor shall keep himself fully informed of all federal, state, and local laws, ordinances, rules, and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work and the conduct of the Work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same, as well as

any amendments, revisions or changes thereto. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Project Documents or in the Work in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing. The Contractor shall at all times observe and comply with, and cause all his agents, servants, employees and subcontractors to observe and comply with all such existing and future laws, ordinances, rules, regulations, orders, decrees and other requirements, and he shall protect, indemnify and save harmless to the fullest extent of the law CWS, its officers, agents, servants and employees from and against any and all claims, demands, suits, proceedings, liabilities, judgments, penalties, losses, damages, regulatory fines, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of his agents, servants, employees or subcontractors; provided, however, that the foregoing indemnity shall not extend to a case involving liability for damage arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of any such indemnities.

ANTI-HARASSMENT

The CWS is committed to maintaining a work environment free of discrimination. Contractor understands that in the course of providing services, it shall comply with all federal, state and local laws relating to equal opportunity and non-discrimination in employment, including without limitation Conn. Gen. Stat. 46a-54(15)(B) (related to training supervisors in the prevention of sexual harassment); 46a-60 (prohibiting discrimination on the basis of race, color, religious creed, age, sex, gender identity or expression, marital status, national origin, ancestry, present or past history of mental disability, intellectual disability, learning disability or physical disability and genetic information), and Conn. Gen. Stat. 46a-81(c) (prohibiting discrimination on the basis of sexual orientation).

HEALTH, SAFETY AND PROTECTION

The Contractor shall take all necessary and appropriate precautions for the safety of, and shall provide necessary and appropriate protection to prevent damage, injury or loss to:

1. All agents, servants, employees or subcontractors of the Contractor involved in the Work and other persons who may be affected thereby, including without limitation the agents, servants, employees and subcontractors of CWS, the Engineer, CWS's other contractors and adjoining property owners and other persons on or nearby the Site:
2. All Work and materials and equipment incorporated or to be incorporated therein, whether in storage on or off the Site, under the care, custody or control of the Contractor or any of his agents, servants, employees or subcontractors; and
3. Other property at the Site or adjacent thereto, including without limitation trees, shrubs, lawns, walks, pavements, roadways, structures and utilities.

The Contractor shall be solely responsible for initiating, implementing, maintaining, supervising, enforcing and assuring compliance with safety rules, precautions and programs which satisfy and comply with all federal, state and local laws, rules, regulations, orders, codes and standards applicable to the performance of the Work, including but not limited to all occupational safety and health standards and requirements adopted or recognized under the Occupational Safety and Health Act of 1970, 29 C.F.R. Part 1926; 29 C.F.R. Part 1910; Conn. Gen. Stat. §31-367 to 31-385 (1987); Conn. Agencies Regs. §31-372-107-1926 (1987), and any amendments or changes to any thereof.

The Contractor shall also cause all of his agents, servants, employees and subcontractors to observe and comply at all times with all such safety rules, precautions and programs.

The Contractor shall observe and comply with all federal, state and local environmental and health laws, rules, regulations, orders, codes and standards applicable to the handling, disposal, storage, generation or management of any "hazardous substance" as defined in 42 U.S.C. §9601, or any "hazardous waste" as defined in Conn. Gen. Stat. §22a-115.

The Contractor shall be responsible for establishing hazard communication programs to transmit information on the hazards of chemicals and other substances being used, and all related matters of safety, to all of his agents, servants, employees and subcontractors by means of labels on containers, material safety data sheets, training programs and any other reasonable safeguards and procedures for safety and protection, in accordance with 29 C.F.R. Part 1926.20 and Conn. Gen. Stat. §§31-370; 31-40c-f, 40g, 40j-1 (1987).

The Contractor is responsible for complying with all MSDS requirements. It is the Contractor's responsibility to make his personnel aware of the hazards associated with the materials furnished by The Connecticut Water Company and the safety precautions suggested for handling and use.

If the Company or its Inspector or Engineer observes any conditions which do not comply with the requirements of this Project, CWS may instruct the Contractor's superintendent or other representative to promptly correct such noncomplying conditions.

The Contractor shall provide sufficient, proper and safe facilities at all times for the inspection or observation of the Work and Site by CWS and its authorized representatives, including without limitation such facilities as are necessary to permit CWS and such representatives to observe compliance with all safety rules, precautions and programs required under this Project

While CWS may provide the Contractor with assistance in monitoring safety rules, precautions and programs, and CWS may correct noncomplying conditions which the Contractor has failed to correct promptly, such action shall in no way obligate CWS to conduct safety inspections or identify or correct noncomplying conditions, nor will it relieve the Contractor from any obligations prescribed above, all of which shall remain the sole responsibility of the Contractor.

In the event the Contractor does not meet any requirement described above, the Engineer reserves the right to stop work until such time that the Contractor corrects the noncomplying

condition. The Contractor shall be responsible for additional costs or delays resulting in the work stoppage.

The Contractor shall protect, indemnify and save harmless The Connecticut Water Services, the Engineer and their respective officers, agents, servants and employees from and against any and all claims, demands, suits, proceedings, liabilities, judgments, penalties, losses, damages, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any of the provisions of the Supervision of Work, Compliance with Laws, and the Health, Safety and Protection, and Safety Compliance Sections of these general conditions; provided, however, Contractor shall not be liable under this section to the extent that any such liabilities, losses, fines, penalties, damages, costs, actions, expenses, claims, demands, liens, encumbrances, judgments, administrative proceedings, or suits arise out of or result from the negligence or willful misconduct or breach by the Indemnified Parties.

SAFETY COMPLIANCE

The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including but not limited to his employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the Owner, the Engineer, and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including but not limited to structure, pipes, and utilities, above and below ground.

The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and firefighting equipment and shall take such other action as is required to fulfill his obligations under this subsection.

The Contractor shall also familiarize himself with The Connecticut Water Company's Safety Manual and comply with all applicable sections.

JOB SITE EVALUATION

CWS will provide the Contractor with scorecard reviews. The frequency of review will be job specific with the intent to provide open honest communication to the Contractor in reference to their performance. Job site decorum shall be at the highest level. Actions such as, but not limited to, foul language and fighting that could negatively impact CWS's brand or image will not be tolerated. The Company reserves the right to stop work until any issues have been resolved to the Company's satisfaction. Evaluation forms will be used to determine the Contractor's suitability for future work.

WATER

Upon notification by the Contractor to the Company water required for reasonable use in the construction and testing of the work may be secured by the Contractor, at a cost from an approved water main location, as available. The Contractor shall lay all connecting lines of such size as are necessary for his operations.

COMMENCEMENT OF WORK

The Contractor shall commence work on the site within a reasonable timeframe after notice from CWS to do so. He shall commence work at such points as CWS shall direct and shall thereafter continue at such points and in such order of precedence as CWS may from time to time direct. He shall notify CWS whenever his construction crew is at the job site.

TIME OF COMPLETION

The Contractor shall complete the entire project, ready for operation, not later than the date as required by the project. Work shall be consistent, without unnecessary break or delays, to completion.

EMPLOYMENT OF SUFFICIENT LABOR AND EQUIPMENT

If in the sole judgment of the Inspector the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work, the Inspector may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means and as the Inspector deems necessary to enable the Work to progress properly.

PROJECT DRAWINGS

Project drawings (when available) and these specifications are complementary. What is called for by one shall be considered called for by both. Any construction deviation from the project drawings must be approved by CWC.

MATERIALS AND WORKMANSHIP

All materials and workmanship shall be the best of their several kinds and subject to the approval of the Inspector or other designated Company official except where otherwise specifically mentioned.

LINES, GRADES AND MEASUREMENTS

For work requiring lines, grades and measurements, the Contractor shall employ a competent engineer to establish all lines, elevations, reference marks, batter boards, etc., needed by the Contractor during the progress of the Work, and from time to time to verify such marks by instrument or other appropriate means.

The Engineer shall be permitted at all times to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor, who shall correct any errors in lines, elevations, reference

marks, batter boards, etc., disclosed by such check. Such a check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire work.

For his work, the Contractor shall make, check, and be responsible for all measurements and dimensions necessary for the proper construction of and the prevention of misfitting of work.

INSPECTION DURING CONSTRUCTION

CWS will appoint an Inspector to: inspect all materials and workmanship; document project safety compliance; and see that the work conforms to the specifications and drawings.

The failure of the Inspector to reject or condemn improper materials and workmanship shall not prevent CWS from rejecting materials and workmanship found defective at any time prior to the final acceptance of the completed work, nor shall it be considered as a waiver of any defects which may be discovered later, or as preventing CWS at any time subsequently from recovering damages for work actually defective.

The Contractor shall provide sufficient, safe and proper facilities at all times for inspection.

The Inspector shall be furnished by the Contractor with every reasonable facility for examining and inspecting the work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering of portions of finished work by the Contractor.

Should the work thus uncovered prove satisfactory, the cost of uncovering and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract or in the absence of the Inspector and without his written authorization, in which case said cost shall be borne by the Contractor. Should the work uncovered prove unsatisfactory, said cost shall be borne by the Contractor.

INSURANCE COVERAGE

The Contractor shall obtain the required insurance as indicated on attached Insurance Certificate and shall submit duplicate copies of the executed forms upon execution of this Proposal and Contract. The Contractor shall also provide said copies upon Certificate renewal as appropriate throughout the term of the agreement.

In addition to the submission of the aforementioned Certificate, CWS requires a blanket Additional Insured Endorsement. This insurance shall apply as Primary and non-contributing insurance before any other insurance or self-insurance, including any deductible, maintained by, or provided to, the additional insured. Further, CWS requires ISO Additional Insured Endorsements CG 2010 and CG 2037, or equivalent. In the event insurance is cancelled, CWS requires a minimum of 30 days-notice of policy cancellation.

Contractor shall maintain CGL coverage for itself and all additional insureds for the duration of this agreement and maintain Completed Operations coverage for itself and each additional insured for at least 1 year after the completion of each project.

WAIVER OF SUBROGATION

Contractor waives all rights against CWS and their agents, officers, directors and employees for recovery of damages to the extent these damages are covered by commercial general liability, commercial umbrella liability, business auto liability or workers compensation and employers liability insurance maintained by the requirements stated or referred to in the insurance section above.

TAXES

Contractors are directed to the provision of the Connecticut Sales and/or Use Tax Law and particularly to Regulation No. 90 of the Connecticut State Tax Dept. - Sales and Use Tax Division, as amended, entitled "Contractors and Subcontractors". It will be noted that, in accordance with the provisions of the aforesaid Regulation No. 90, Contractors in any contract resulting from this inquiry will be considered responsible for remitting to the State of Connecticut all Sales and/or Use Taxes which may be applicable under said contract. Therefore, quotations submitted in connection with this inquiry shall be prepared in accordance with the provisions of the aforesaid tax law. CWS will provide the required tax exemption certificate for purchase of all materials required for the completion of the project as indicated.

The Connecticut Water Company reserves the right, if necessary, to require additional breakdowns and supplemental information, such as copies of backup records, for any statement to The Connecticut Water Company from each Contractor or supplier, e.g., cost of materials, services, transportation, delivery and installation costs.

All other taxes of any nature imposed with respect to such equipment, the manufacture, sales or use thereof or the materials incorporated therein or with respect to Contractor's or supplier's performance of the contract or its receipts, income or profits thereunder, shall be the sole responsibility of the Contractor.

Nonresident contractors will be required to show proof of compliance with bonding requirements contained in the State of Connecticut Department of Revenue Services Special Notice 2005 (12). As outlined in DRS SN 2005 (12), any nonresident contractor will be required to furnish a cash or guarantee bond for 5% of the total contract price.

GENERAL GUARANTEE

The Contractor agrees to guarantee his work for a period of one (1) year from and after the date upon which the Company has accepted the installation. He shall during this period repair promptly at his own cost and expense all breaks, failures, defects or site restoration issues which develop in his work as a result of faulty material or workmanship furnished by him.

If they cannot perform such work promptly, they are liable to pay the reasonable cost for such repairs as performed by CWS or its agents.

JOB MEETINGS

The Contractor will be required to meet prior to commencement the project and periodically thereafter with Company representatives to discuss scheduling, sequence of operations, and coordination of the work.

CARE AND RESTORATION OF PROPERTY

The Contractor shall enclose the trunks of trees adjacent to his work that are not to be cut, with substantial wooden boxes of such height as may be necessary to protect them from injury from piled material, from equipment, from his operations, or otherwise due to his work. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.

Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. In case of cutting or unavoidable injury to branches, limbs, and trunks of trees, the cut or injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.

If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the work at no additional cost to CWS. Any damage to pipes, drainage structures or other utilities, whether active or abandoned, shall be repaired by the Contractor at no additional cost to CWS.

All surfaces (including paved roadways, parking areas, driveways and sidewalks) which have been injured by the Contractor's operations shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods shall be used for such restoration.

The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of the construction period.

CALL BEFORE YOU DIG

The Contractor shall, at least seven full working days prior to the start of work, notify Call Before You Dig (CBYD) (1-800-922-4455 or 811) for the location and marking of all underground utilities in the work area, and shall provide CWS with the "CBYD Ticket No." of said mark out request.

CBYD excavation notices expire at the end of 30 calendar days from the date notice is given to the clearing house. If construction is not completed or is expected to last beyond 30 calendar days, a renewal notice must be provided to CBYD before the expiration.

The Contractor is to comply with all current Call Before You Dig Regulations.

CONTRACTOR'S RESPONSIBILITY FOR MATERIALS FOR AND EQUIPMENT

The Contractor shall assume full responsibility for all supplies, materials and equipment required by him for the work he contracts to do, whether furnished by him or by CWS until the same shall have been installed and finally tested and accepted.

CLEANING UP

During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.

Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes or structures, in connection with work done under this contract, or elsewhere during the course of the Contractor's operation, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipe structures, and work, etc., shall upon completion of the work be left in a clean and neat condition.

On or before the completion of the work, the Contractor shall, unless otherwise specifically directed or permitted in writing, tear down and remove all temporary buildings and structures built by him, shall remove all temporary works, tools, and machinery or other construction equipment furnished by him, shall remove all rubbish from any grounds which he has occupied, and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

The Contractor shall not dispose of any excess excavated materials on the adjacent properties, unless written approval has been secured from the property owner. The Contractor shall furnish to CWS a copy of the property owner's approval prior to the disposal of any materials.

The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment or employees to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Suitable materials, equipment and methods shall be used for such restoration.

SECTION II

TRENCHING, BACKFILLING AND INSTALLING DUCTILE IRON WATER MAINS AND APPURTENANCES

WORK TO BE DONE

The work to be done includes furnishing all materials, labor, tools, plant and equipment required for receiving, inspecting, hauling and distributing materials, removing pavement; excavation and backfill; and installing, disinfecting and testing the ductile iron water piping and appurtenances including valves and fittings; proper retirement/abandonment-in-place of existing mains; providing As Built installation sketches; all as shown on the drawings, (when available) specified herein or ordered by CWS; complete in every detail, ready for operation.

REMOVING PAVEMENTS

Where existing streets, road or highways are paved within the limits of the trench, such pavement or surfacing shall be removed to the extent necessary for the work.

Prior to pavement removal, the pavement shall be cut by jackhammer, wheel, trench milling or saw cut. Saw cutting of pavement where required prior to permanent pavement placement.

DIMENSIONS

The width of trenches shall be sufficient to permit proper alignment of the pipes and thorough tamping of the backfill around and under the pipes in their final location. There shall be at least twelve (12) inches clear opening at all points between the outside of the pipe and the sides of the trench. Where trenches are sheeted, the specified clear opening shall be provided between the inside face of the sheeting and the outside of the pipe.

All water mains shall be installed as shown on the plans and to the line and grades as shown on the profiles, if provided. The minimum depth of cover shall be 4 feet. For the crossing of sewers, storm drainage or other utilities the water main shall be laid to the elevations as shown on the plans, or as directed by the Inspector but in no case shall the separation between the two be less than 18" vertical unless specifically approved by the Inspector.

Where necessary to avoid existing structures, to secure suitable foundations or to conform to future grading of streets or side-walks, a greater or lesser depth may be authorized by CWS. If the trench is excavated to a depth greater than specified or authorized, the Contractor shall refill the trench to the required depth with suitable material thoroughly tamped.

TRENCHING

In excavating trenches, the Contractor may use such methods as CWS will approve. Where the use of trenching machines is permitted, he shall before starting work, obtain all available information as to the location of existing underground structures, and shall plainly mark their location in advance of the excavation. The length of trench excavated ahead of the pipe laying, and the length of trench which may remain open at one time shall at all times be subject to the approval of CWS. It shall at no time be greater than can properly be protected from caving.

TUNNELING

Excavation shall be made in open cut. No tunneling will be permitted unless under written authorization of CWS.

EXCAVATION AND BACKFILLING

The Contractor shall perform all necessary excavation and backfilling called for in these specifications or as required by CWS, including the necessary sheeting, shoring, pumping, bailing, supporting and protecting existing structures and repairing them when damaged, and removing or altering existing underground obstructions which are owned by private parties.

ROCK EXCAVATION

Rock excavation and replacement backfill shall include the cost of excavating, hauling and disposing of material classified as rock, the dressing of surface to receive structures, refilling trenches under pipelines, the exclusion and removal of water from the site of the work, and the furnishing of all materials and labor, tools, plant and equipment necessary to the performance of the work herein specified, permits for rock excavation will be pass through costs with no markup.

If material suitable for backfilling is not available in sufficient quantity from other excavations, the Contractor shall, at his own expense, furnish suitable material from outside sources.

Rock excavation shall include solid rock in place, detached rocks, sound masonry and concrete, measuring more than one (1.0) cubic yard, but shall not include pavements or sidewalks.

The Contractor shall obtain all permits and observe all rules and regulations of authorities having jurisdiction relative to the handling, storing and use of explosives, and shall exercise every care in blasting operation to protect life and property.

No charge shall be used which is larger than necessary to split the rock.

When, in the opinion of CWS, it is desirable to do so, CWS may prohibit blasting and order rock to be removed by mechanical means. Mechanical means shall be classified as rock removed by jackhammer or hoe ram. Rock removed by pounding or scraping with an excavator bucket and rock teeth shall not be classified as removal by mechanical means.

Excavation in rock trench for pipelines shall provide at least twelve (12) inches clearance below the outside bottom of the pipe and around the pipe with the space refilled with acceptable well-compacted sand.

ADDITIONAL EXCAVATION

If, in the opinion of the Engineer, the material below normal grade of the excavation is unsuitable for foundation, it shall be removed and disposed of to such limits as the Engineer may direct.

BACKFILL

Backfilling material for at least one (1) foot above the top of the pipe shall consist of selected fine material containing no stones larger than one-half inch in size. Backfill of the fine selected material shall be carefully and thoroughly tamped with approved tools in such a manner as to prevent settlement. Special care shall be taken to place the best sandy or gravelly material under the pipe on the quarters and to bring it up solidly so as to furnish a hard bed for the whole of the lower part of the pipe.

The required backfill above the one-foot layer of fine selected material may be placed in one layer provided it is compacted by means of a hoe-pack to achieve a 95% modified proctor density. If a hoe-pack is not used, the backfill shall be spread in layers not exceeding twelve (12) inches in depth prior to compaction. Each layer shall be carefully and thoroughly tamped with approved tools in such a manner as to prevent settlement after the backfill has been completed and to achieve a 95% modified proctor density. If in the opinion of the "Engineer or Inspector" the compaction of the backfilled trench is not suitable, compaction tests will be required to verify that proper compaction was achieved. All costs for compaction tests will be borne by the Contractor.

Blue marking tape reading "Caution - Water Line Below" shall be placed a minimum of 24" above the top of the water main.

The use of frozen material will not be permitted. The excavated paving, either bituminous or other, shall not be placed in the trench as backfill.

All settlement in backfill shall be repaired by the Contractor at his expense.

Prior to placement of permanent pavement all trenches shall have sufficient compaction to achieve a 95% modified proctor density.

BANK RUN GRAVEL

All excavation shall be classed as earth excavation or rock excavation.

Earth excavation shall include sand, gravel, ashes, loam, clay, swamp muck, soft or disintegrated rock or hardpan which can be removed with a pick, or a combination of such materials, and

boulders measuring less than one (1.0) cubic yard whether the boulders are blasted or removed intact.

At the option of the inspector, replacement gravel shall be either bank run gravel or select gravel which meet the following gradations.

A. Bank Run Gravel

Bank run gravel shall have a gradation within the limits given below. It shall be obtained from approved natural deposits and unprocessed except for the removal of unacceptable material and stones larger than the maximum size permitted. It shall not contain vegetation, masses of roots, or individual roots more than 18 inches long or more than 1/2 inch in diameter. It shall be substantially free from loam and other organic matter, clay, and other fine or harmful substances.

<u>Sieve Size</u>	<u>Percentage by Weight Passing</u>
6 in.	100
3-1/2 in.	90-100
1-1/2 in.	55-95
1/4 in.	25-60
No. 10	15-45
No. 40	5-25
No. 100	0-10
No. 200	0-5

B. Select Gravel

Select gravel shall have a gradation within the limits given below. It shall be obtained from approved natural deposits and unprocessed except for the removal of unacceptable material and stones larger than the maximum size permitted. It shall not contain vegetation. It shall be free from loam and other organic matter, clay, and other fine or harmful substances.

<u>Sieve Size</u>	<u>Percentage by Weight Passing</u>
3 in.	100
1/2 in.	80-100
No. 4	60-80
No. 40	10-30
No. 200	0-10

CUTTING PIPE

Pipe shall be cut by means of a pipe saw or other approved method in accordance with the manufacturer's operating instructions for the equipment to produce a clean true cut, free from

irregularities and leave a smooth end at right angles to the axis of the pipe. All bevels shall be made with appropriate grinding equipment

INSTALLING DUCTILE IRON PIPE

All pipes shall be carefully examined for defects and no piece shall be installed which is known to be defective. If any defective piece is discovered after having been installed, it shall be removed and replaced with a sound one at the expense of the Contractor. All pipes and fittings shall be thoroughly cleaned before they are installed and shall be kept clean until they have been accepted in the completed work.

Where directed by CWS, each piece of pipe and each fitting shall be installed upon blocking set at no less than two (2) different points along its length. The blocking shall be sound timber two (2) inches thick, twelve (12) inches wide and of a length equal to the diameter of the pipe. Wedges twelve (12) inches long, of four (4) inch by four (4) inch sound timber, shall be placed on the blocking to hold the pipes and special castings in position.

Blocks shall be firmly bedded on the trench bottom slightly below the grade of the finished pipe before the pipes are placed. After the pipes have been lowered into the trench, the wedges shall be placed and adjusted so as to bring the pipe to proper alignment and grade.

OBSTRUCTIONS

The Contractor shall lay the pipes or pipe lines through or around all permanent obstructions which may be encountered on or below the surface, and make all necessary removals or alterations of existing underground structures which are owned by private parties.

The attention of the Contractor is directed to the fact that there may be existing sanitary sewers and laterals, gas and water mains with services in all streets along with telephone, electric, cable TV or other underground utilities. CWS will furnish assistance to the Contractor in establishing the location of these systems on the site. If the Contractor should damage or break any of the above items, he shall repair the damaged service at his own cost.

JOINTS

All pipe joints will be push-on type rubber gasketed unless otherwise specified. All fittings and valves will be of the mechanical joint type with Mega Lug retainers unless otherwise specified. Locking gaskets shall be placed a minimum 3 full pipe lengths from the end of all dead end lines and blow offs. At all change of direction, locking gaskets shall be installed a minimum of 2 full pipe lengths from the fitting.

RUBBER GASKET JOINT

Rubber gasket joints will be of the compressed rubber ring gasket type. The joints shall be thoroughly cleaned, prepared and installed in strict accordance with the requirements, instructions and recommendations of the joint manufacturer and of CWS.

Only rubber gaskets furnished by the manufacturer of the pipe shall be used. Gaskets which have become damaged or which are defective in any way shall not be used in the work. Gaskets shall be stored in a cool, dark and dry place and shall be kept warm prior to their use in cold weather. Jointing materials in addition to the gaskets, if required by the type of joint furnished, shall fully comply with and be installed in accordance with the requirements of the manufacturer of the joint.

POLYETHYLENE ENCASEMENT

Polyethylene encasement shall be installed around water main ductile iron pipe and appurtenance installations including hydrant laterals and barrel to ground level and all associated service lines, three (3) feet from the main connection, and also shall be installed as directed by CWS Project Personnel and as directed by the Inspector.

Polyethylene encasement shall be installed in accordance with AWWA standard C105-99 method "A", or latest revision thereof, at locations as directed. The polyethylene tube shall be cut to a length approximately 2 feet longer than that of the pipe section. Slip the tube around the pipe, providing a 1-foot overlap at each end. Lower the pipe into the trench and make up the pipe joint, overlapping the wrap at the joint. Take up the slack width to make a snug, but not tight, fit along the barrel of the pipe. Repair any rips, punctures, or other damage with adhesive tape or with a short length of polyethylene tube cut open then wrapped around the pipe and secured in place.

TESTS AFTER INSTALLATION

After the pipe has been installed and backfilled, all newly installed pipe shall be subjected to a pressure and leakage test conducted in accordance with AWWA Standard C600-99, Section 5 and as follows.

A) Pressure Test:

All newly installed pipe shall be subjected to a hydrostatic pressure of 1.5 times the working (system) pressure at the point of testing, but in no case less than 1.25 times the working pressure at the highest point along the test section. The test pressure shall not exceed pipe or thrust restraint design limits, twice the rated pressure of closed valves or hydrants located within the test area, or the rated pressure of closed resilient-seated gate or butterfly valves. The test shall be maintained for a minimum of two hours with no more than a 5 psi variation during the test period.

B) Leakage Test:

The leakage test will be conducted at the same time as the pressure test. Leakage is the quantity of water required to maintain the pressure within 5 psi of the specified test pressure, it is not the measured drop in pressure. Leakage shall not exceed the number of

gallons per hour as determined by the inspector, and is indicated in Table 6 of the above specified AWWA Section.

C) General.

Before applying the specified test pressure, all air shall be expelled from the pipe. If hydrants or blow offs are not available at high places, the Company shall make the necessary taps at points of highest elevation before the test is made and insert the plugs, if desired, after the test has been completed. The section to be tested shall be closed by valves, temporary flanges, plugs or bulkheads as required.

Each valved section of pipe shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the inspector. The pipe connection and all necessary apparatus including pump shall be furnished by the Contractor. The Contractor shall furnish all necessary labor and materials for conducting the tests.

If leakage is either visible or indicated by the above test procedure, the Contractor shall do whatever is necessary to locate and repair said leak at his own expense. Upon completion of the repair the pipeline shall be retested.

DISINFECTION & FLUSHING

Prior to any section of pipeline being put into service, it shall be thoroughly disinfected in accordance with AWWA Standard C651-14, AWWA Standard for Disinfecting Water Mains, Section 4.4, Continuous-Feed Method of Chlorination (or the latest revision thereof) included as Appendix AA.

The Contractor is responsible for developing a detailed plan for the disinfection procedure with liquid sodium hypochlorite solution (conforming to ANSI/AWWA B300) and de-chlorination of discharge water for the water main installation. The detailed plan shall be submitted to the Company for approval. This submittal should identify the location of injection and discharge points, the materials (conforming to Company specs) and disinfection and de-chlorination products to be used. This submittal shall also identify any proposed subcontractors for this activity and provide references (3) and list of comparable projects (3) recently completed by them. The contractor shall only proceed with this procedure upon approval of the submittal by the Company.

The Company will typically perform the flushing of the water main in preparation for disinfection. As needed the contractor shall support to Company with this effort to meet the following guidelines. The completed line shall be slowly filled with water to eliminate air pockets and flushed to remove particulates. The flushing velocity in the main shall not be less than 3.0 ft/sec (0.91 m/sec). Flushing shall be performed for a sufficient period of time to allow for a minimum of 3 volume changes of water in the main (approximately 16 minutes per 1,000 feet of main at a flow rate that produces 3.0 ft/sec rate).

Introduce chlorine to the main at a constant rate from a point not more than 10 ft. downstream from the beginning of the new main, such that the water will have at least 25 mg/L free chlorine. The heavily chlorinated main shall remain at static pressure for no less than 24-hrs. (not to exceed 48-hrs.). Chlorine residual remaining after 24 hours must be at least 10 mg/L. If less than 10/mg/L chlorine is measured after 24 hours, the Contractor shall repeat flushing and disinfection procedures.

Flushing and Dosing Reference Values
(From AWWA C651 Table 3 and Table 4)

Pipe Diameter (in)	Flushing Flow Rate to Produce 3.0 ft./sec (gpm)	1% Chlorine Solution Required to Produce 25 mg/L concentration in 100 feet of pipe (gal)
4	120	0.16
6	260	0.36
8	470	0.65
12	1,060	1.44

The Contractor shall be responsible for the dechlorination of disinfection discharge water. The discharge of heavily chlorinated water (concentrations greater than system residual) to the environment is prohibited. The discharge water must be dechlorinated satisfactory to the Company before released to the environment. Dechlorination will be incidental to the activity. During dechlorination, a neutralizing chemical shall be applied to the water to be wasted to thoroughly neutralize the residual chlorine (see ANSI/AWWA C655 for neutralizing chemicals). Where necessary, federal, state, local, or provincial regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

Upon completion of flushing, disinfection, and dechlorinating, a water sample from the section shall be collected by the Company for third-party analysis.

No section of main shall be put into service without the approval of the Company, and should the analysis be unsatisfactory, the section shall again be disinfected and retested until an analysis satisfactory to the Company is obtained. All costs for additional disinfection and retesting shall be borne by the Contractor. All temporary taps and discharge points for the disinfection and flushing process shall be permanently abandoned upon successful testing unless approved by the Company to stay in place. Abandonment of temporary taps includes positioning the corporation 'off' and installing a Mueller H-15451 coupling and corresponding NPT plug. Abandonment of disinfection taps and blow-offs will be incidental to the activity and shall be coordinated with the Company representative.

APPURTENANCES

The Contractor shall exercise care in planning the work to arrange for the proper setting of all fittings, valves and other appurtenances required in the completed pipe lines. Fittings shall be properly supported with additional blocking if required to maintain the pipe lines in alignment. All bends and tees shall be securely anchored by poured concrete blocking or dry wedged

blocking. As needed, all friction clamps, thrust rods and miscellaneous exposed metal threads are to be coated with asphaltum.

Special attention shall be given to the accurate placing of valves so that they will not be subject to undue strains, and where required by CWS, they shall be supported on sound timber blocking. Valves shall be set with their stems truly vertical. Valve boxes shall be carefully placed to insure the free and proper operation of the valves.

PROTECTION OF THE PUBLIC

Improved streets, roads, driveways and sidewalks shall be kept open over all trenches and excavations and the use thereof rendered safe by the construction of substantial timber bridges with proper handrails where required.

MATERIAL HANDLING

The Contractor will order, schedule delivery, receive, unload, and store until required for installation all materials necessary to complete the project complete and ready for use in accordance with the project plans

TRAFFIC CONTROL

Traffic control will be the responsibility of the Contractor. Traffic control is to be provided to the satisfaction of CWS and the governing authority.

BARRICADES, FLASHERS AND SIGNING

Any construction equipment plant, materials or obstruction placed on streets, roads or walks, and all open excavations shall be carefully marked and protected by barricades with flashers and construction safety fence.

The Contractor shall supply, place, and maintain traffic signs and cones to the extent necessary to provide the signing pattern(s) required by the state, local, or governing agency or as requested by the Company.

ROADWAYS TO BE KEPT CLEAR

The Contractor shall dispose of his plant, construction and excavated materials so as not to obstruct streets, roads, highways or private rights of way. He shall not obstruct the gutter of any street, road or highway, but shall take such measures as will insure the free passage of surface and storm waters along the gutters. All excavated materials shall be placed in a neat manner on one side of the trenches and shall be kept trimmed up so as to inconvenience the traveling public and adjacent property owners as little as possible. The utmost care shall be used to avoid interference with the ordinary use of the existing streets, roads or highways.

No portion of any street shall be closed to traffic unless written permission of the proper Civil Authorities has first been obtained.

DUST CONTROL

The Contractor shall keep on the job sufficient supplies of calcium chloride to be applied at locations and at such times and in amounts as directed for the purpose of allaying dust conditions. Roadway sweeping shall be performed at the end of each workday to remove all debris from the roadway surface. The cost of such work shall be included in prices submitted for excavation, backfilling and laying of ductile iron water main.

SHEETING, BRACING AND COFFERDAMS

To prevent injury to the work or delay in construction, all excavations shall be maintained in good order and all necessary precautions taken to prevent movement of the sides.

HANDLING OF WATER

The Contractor shall at all times take such precautions as are necessary to keep the work free from ground or surface water. He shall provide pumps of adequate capacity to remove from the excavations the water which may enter and in such a manner that it will not interfere with the progress of the work or the proper placing of the pipe.

HANDLING MATERIALS

Proper and suitable tools for safe and convenient handling and installation of pipes, fittings and valves shall be used. Great care shall be taken to prevent damage to the protective coating. Minor damage to exterior coating may be patched with asphaltum. Excessively damaged material shall be removed.

LOAMING AND SEEDING

Shall include all labor, material, including top soil, and equipment required to loam and seed areas as directed. A limit of ten (10) feet wide shall be utilized unless otherwise indicated or field conditions require additional loaming and seeding.

Areas to be seeded shall be carefully graded, raked, fertilized and seeded with first quality grass seed, applied in accordance with the directions of the supplier. The Contractor shall place approved loam or topsoil on those surfaces and at the locations directed by CWS. All topsoil shall be screened containing stones no larger than ½ in diameter. It shall be placed accurately to a thickness of not less than two (2) inches and to the lines and grades directed by CWS. It shall be rolled with a light roller. After placing loam or topsoil, the surface shall be fertilized and seeded with suitable materials as approved by CWS. Seeding shall be done immediately after preparation of the top surface for which it is ordered. Seeded areas are to be covered with shredded straw. Hydro seeding of topsoil is the approved alternative to traditional seeding with straw cover.

If there is delay for which the Contractor is responsible and weeds grow on such surfaces, they shall be removed by the Contractor and the area resurfaced. After reseeding, the surfaces shall be hand raked and rolled with a light roller.

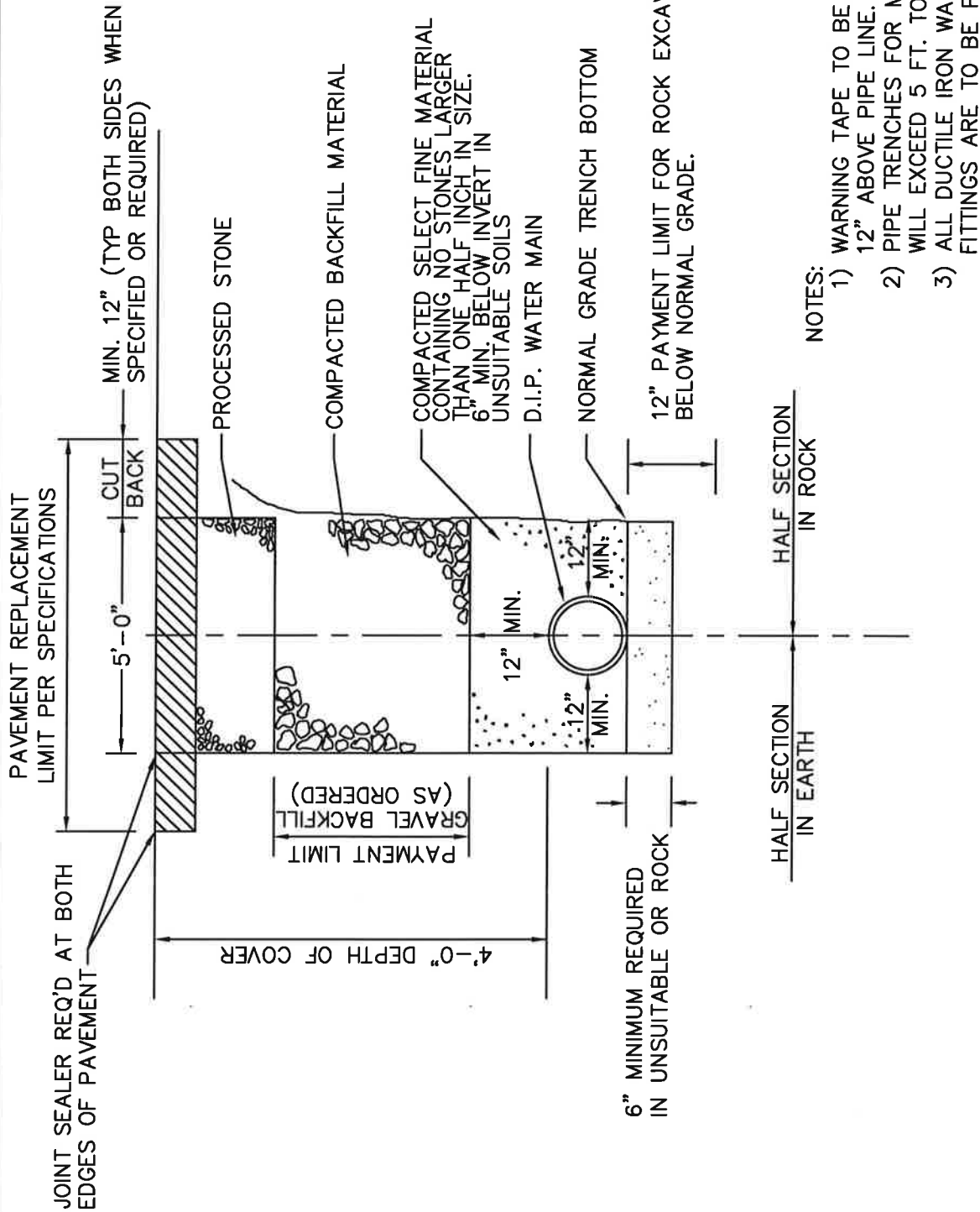
Care shall be taken to have the surfaces conform to the proper lines and grades and any sliding or settlement which may occur shall be repaired by the Contractor at his own expense. All seeded or re-sodded areas shall be thoroughly watered when required by CWS. They shall be maintained by the Contractor until permanently established and shall be subject to the one (1) year guarantee of his work.



WATER MAIN INSTALLATION STANDARD DETAILS

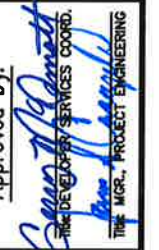
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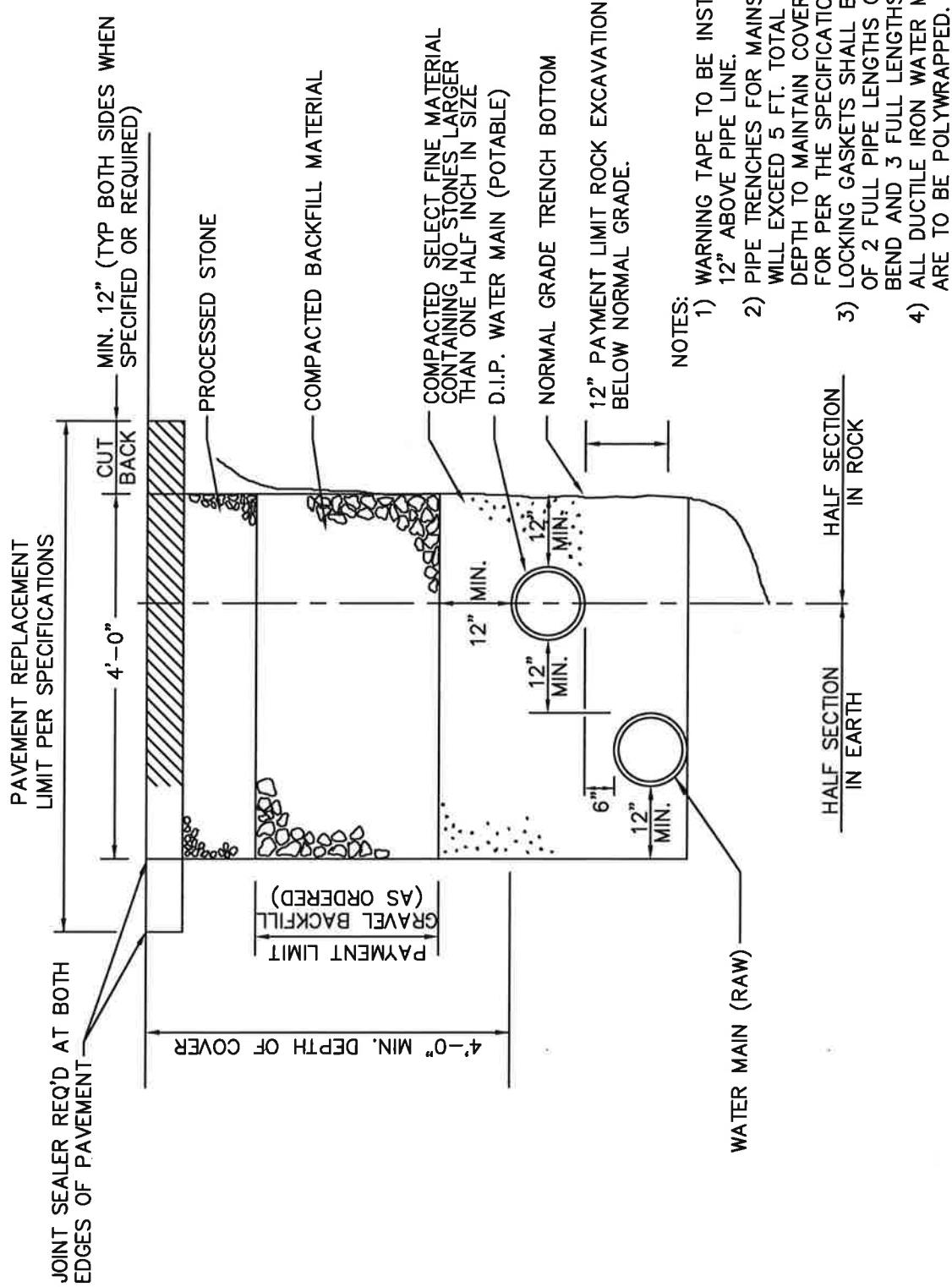
NOTES:

- 1) WARNING TAPE TO BE INSTALLED A MIN. OF 12" ABOVE PIPE LINE.
- 2) PIPE TRENCHES FOR MAINS ABOVE 12" DIA. WILL EXCEED 5 FT. TOTAL DEPTH.
- 3) ALL DUCTILE IRON WATER MAIN AND FITTINGS ARE TO BE POLYWRAPPED.

Drawn By: LRS/LMM	WATERMAIN INSTALLATION DETAIL	Scale: NTS
Date: 3/6/17	TYPICAL TRENCH & PAYMENT LIMITS	Drawing Number
Approved by:  THE DEVELOPER SERVICES COORD. THE MGR., PROJECT ENGINEERING	SD-1 BU Number - Sheet 1 of 1	

ConnecticutWater

93 WEST MAIN STREET
CLINTON, CT 06413-1600
www.ctwater.com



NOTES:

- 1) WARNING TAPE TO BE INSTALLED A MIN. OF 12" ABOVE PIPE LINE.
- 2) PIPE TRENCHES FOR MAINS ABOVE 12" DIA. WILL EXCEED 5 FT. TOTAL DEPTH. ADDITIONAL DEPTH TO MAINTAIN COVER WILL BE PAID FOR PER THE SPECIFICATIONS.
- 3) LOCKING GASKETS SHALL BE INSTALLED A MIN. OF 2 FULL PIPE LENGTHS ON EITHER SIDE OF A BEND AND 3 FULL LENGTHS BEFORE END OF MAIN.
- 4) ALL DUCTILE IRON WATER MAIN AND FITTINGS ARE TO BE POLYWRAPPED.

Drawn By: LRS/LMM

Date: 3/6/17

Approved by:

[Signature]
 THE DEVELOPER SERVICES COORD.
 TIME MGR. PROJECT ENGINEERING

Connecticut Water

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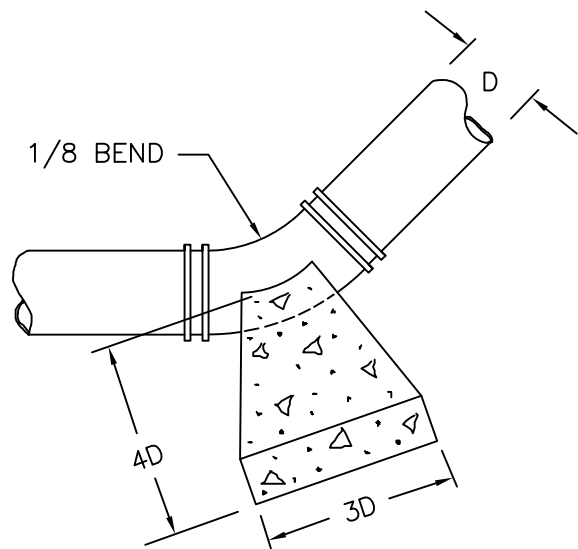
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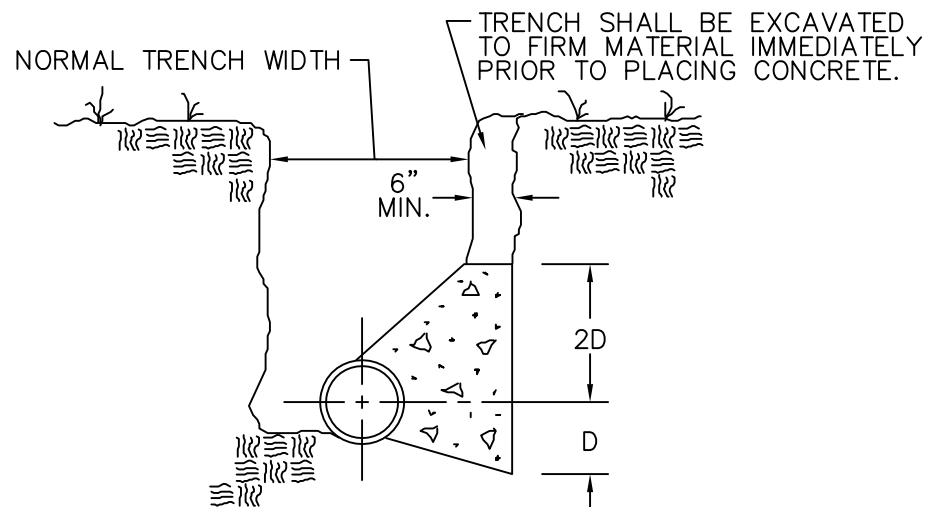
SD-1A

BU Number -
 Sheet 1 of 1

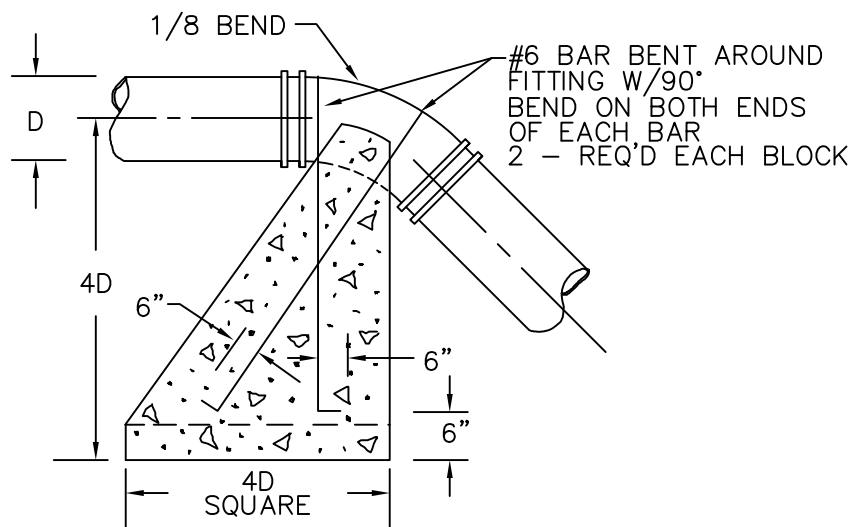
WATERMAIN INSTALLATION DETAIL (MULTIPLE MAINS) TYPICAL TRENCH & PAYMENT LIMITS



HORIZONTAL THRUST BLOCK DETAIL (PLAN VIEW)



HORIZONTAL THRUST BLOCK DETAIL



VERTICAL THRUST BLOCK DETAIL

NOTES:

- 1) 3000 PSI CONCRETE TO BE USED FOR THRUST BLOCKS.
- 2) D-DIAMETER OF WATER MAIN.
- 3) MEGA-LUG RESTRAINING GLANDS SHALL BE USED ON ALL MJ FITTINGS.
- 4) SOLID CONCRETE BLOCKS WITH WEDGES WILL BE PERMITTED ON MAINS UP TO 10" ALL 12" OR LARGER SHALL BE POURED THRUST BLOCKS.
- 5) LOCKING GASKETS SHALL BE INSTALLED A MIN. 2 FULL PIPE LENGTHS ON EITHER SIDE OF A BEND.

Drawn By: LRS

Date: 1/30/12

Approved by:

Title:

Title: CHIEF OF ENGINEERING



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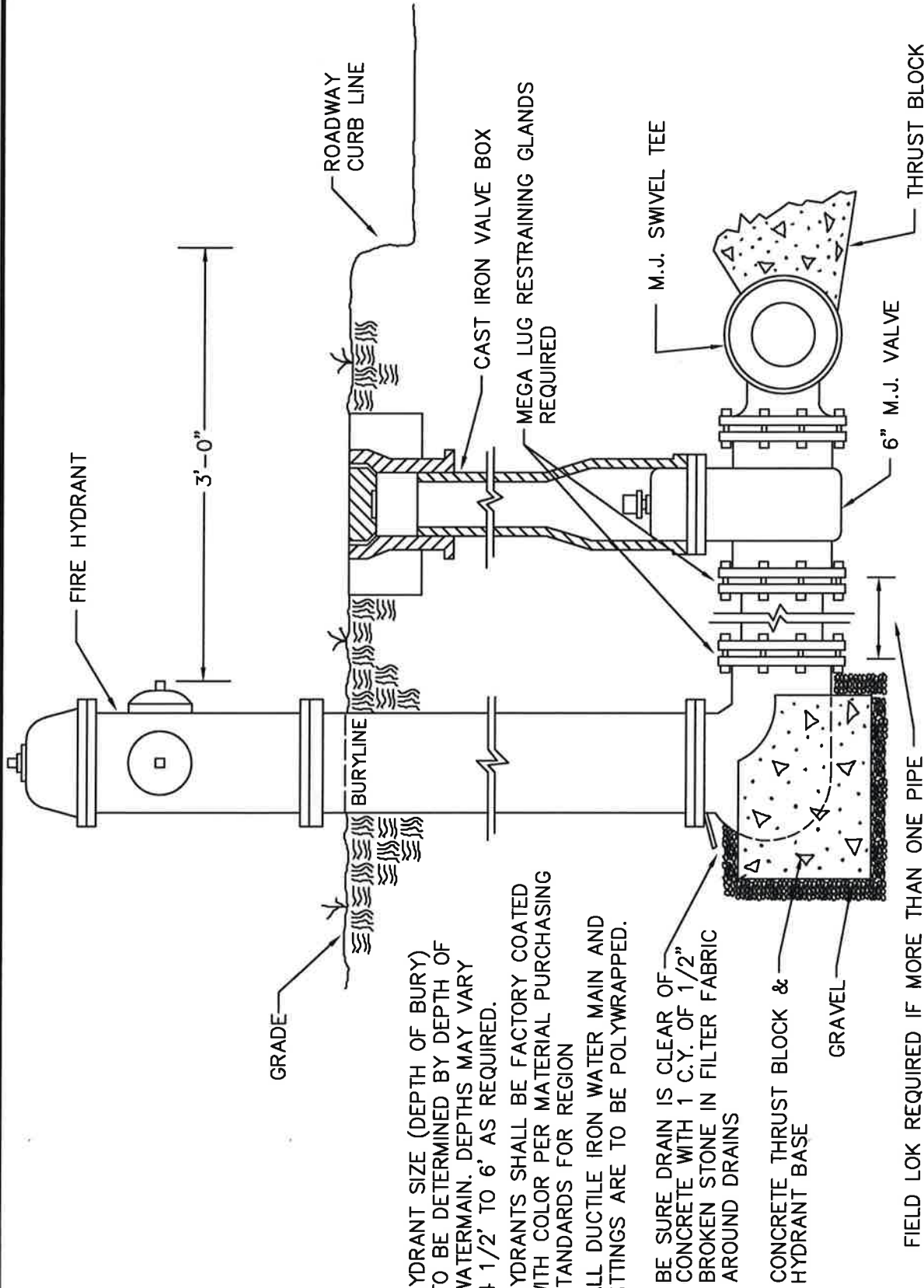
THRUST BLOCK DETAILS

Scale: NTS

Drawing Number

SD-2

BU Number - X
Sheet 1 of 1



NOTES:

- 1) HYDRANT SIZE (DEPTH OF BURY) TO BE DETERMINED BY DEPTH OF WATERMAIN. DEPTHS MAY VARY 4 1/2' TO 6' AS REQUIRED.
- 2) HYDRANTS SHALL BE FACTORY COATED WITH COLOR PER MATERIAL PURCHASING STANDARDS FOR REGION
- 3) ALL DUCTILE IRON WATER MAIN AND FITTINGS ARE TO BE POLYWRAPPED.

BE SURE DRAIN IS CLEAR OF CONCRETE WITH 1 C.Y. OF 1/2" BROKEN STONE IN FILTER FABRIC AROUND DRAINS

CONCRETE THRUST BLOCK & HYDRANT BASE

FIELD LOK REQUIRED IF MORE THAN ONE PIPE

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Drawn By: LRS/LMM

Date: 3/6/17

Approved by:

[Signature]
THE DEVELOPER SERVICES COORD.
THE MGR. PROJECT ENGINEERING

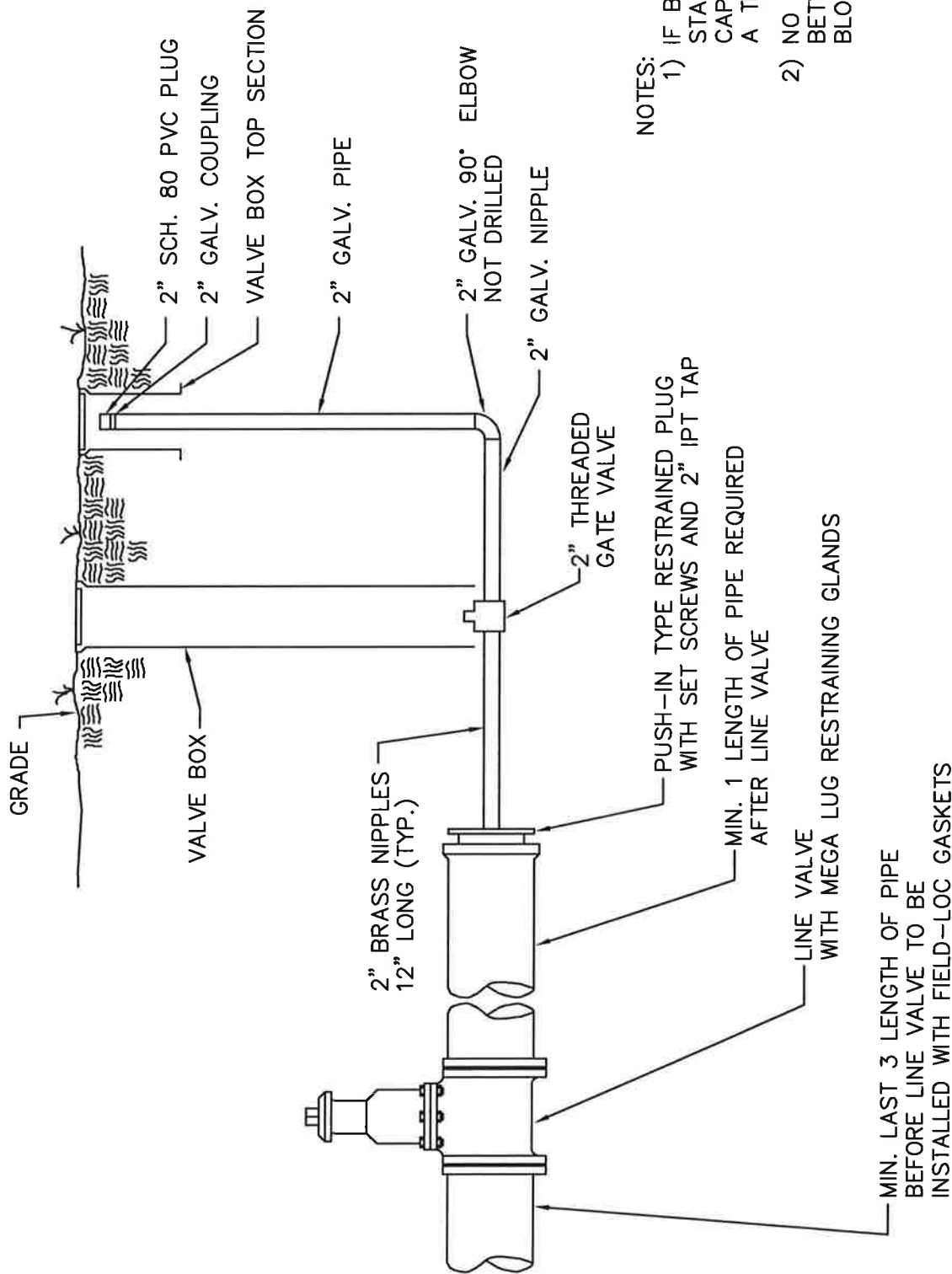
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SD-4

BU Number -
Sheet 1 of 1

HYDRANT INSTALLATION DETAIL



NOTES:

- 1) IF BLOW-OFF IS NOT REQUIRED, STANDARD PUSH IN PLUG OR CAP CAN BE INSTALLED WITH A THRUST BLOCK.
- 2) NO SERVICE CONNECTIONS BETWEEN LINE VALVE AND BLOW-OFF ASSEMBLY.

Drawn By: LRS/LMM

Date: 10/25/16

Approved by:

George M. Gennaro
 THE DEVELOPER SERVICES COORD.
 TIME MGR. PROJECT ENGINEERING

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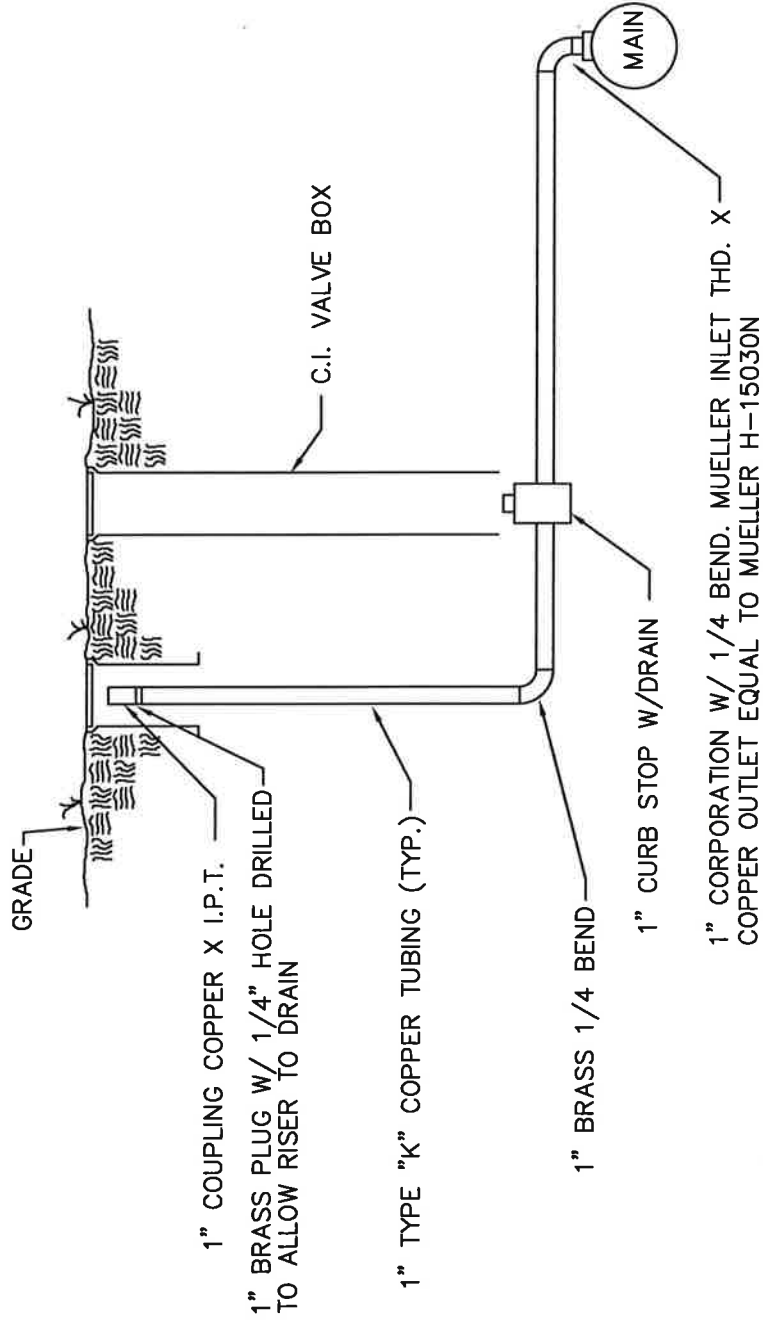
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Drawing Number

SD-5

BU Number -
 Sheet 1 of 1

**4" - 12" WATER MAIN
 DEAD END BLOW-OFF
 DETAIL**



MANUAL AIR RELEASE VALVE

Drawn By: LRS/LMM

Date: 1/10/17

Approved by:

Gregory McNamee
 THE DEVELOPER SERVICES COORD.
James J. Gandy
 THE MGR. PROJECT ENGINEERING

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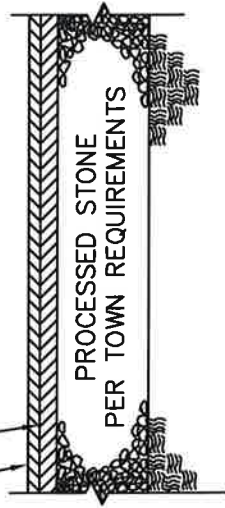
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SD-6

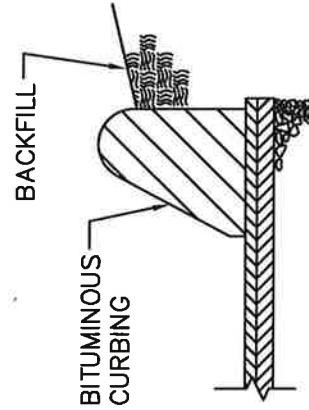
BU Number -
 Sheet 1 of 1

AIR RELEASE DETAIL

1 1/2" CLASS 2 BITUMINOUS CONCRETE
1 1/2" CLASS 1 BITUMINOUS CONCRETE

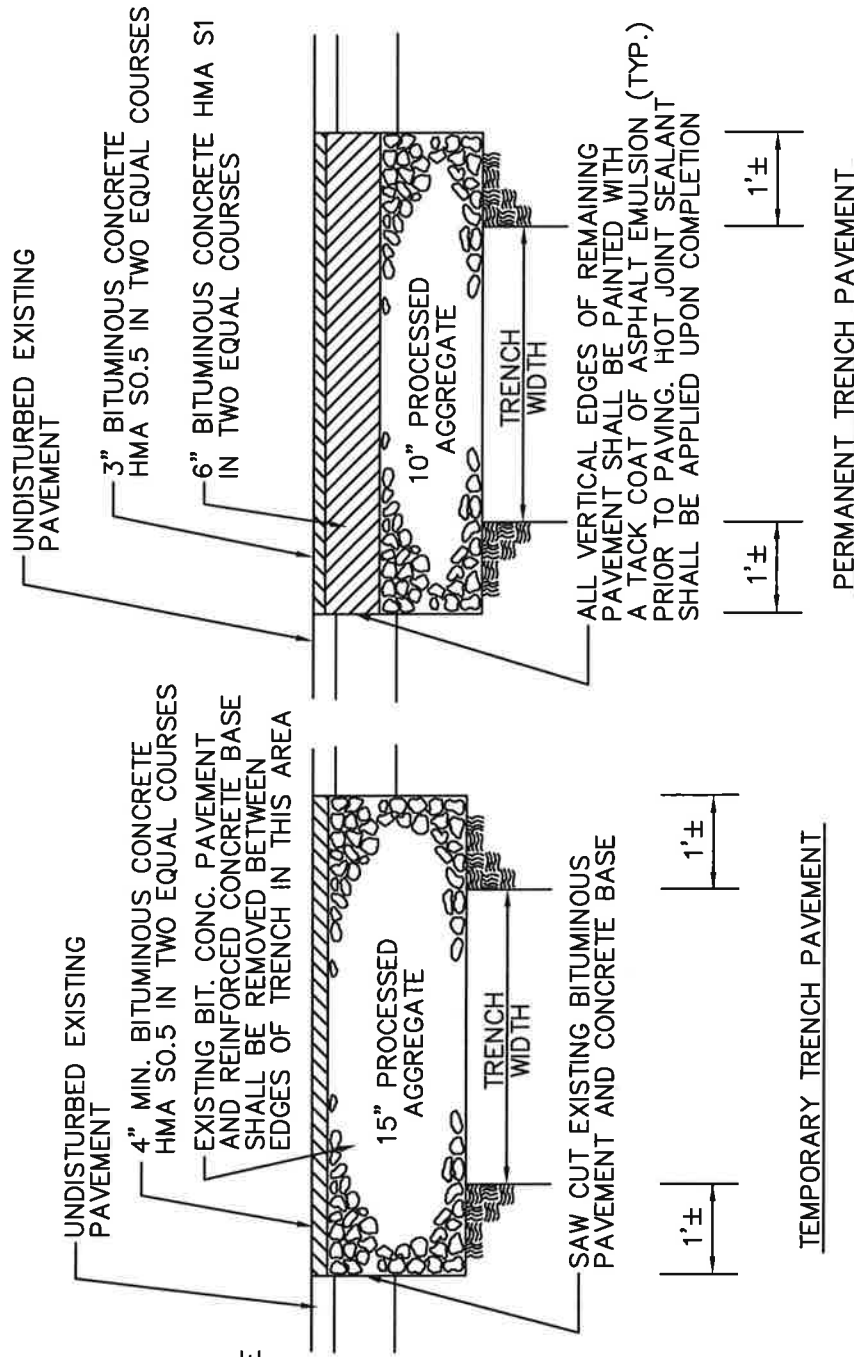


TOWN ROADS ASPHALT



BITUMINOUS CONCRETE CURBING
CONFORM TO DOT SPECIFICATION
M.04.01 CLASS 3

CURBING



STATE ROADS ASPHALT

- NOTES:
- 1) DETAIL VARIES DUE TO INDIVIDUAL TOWN SPECIFICATIONS. DIMENSIONS MAY BE ALTERED DUE TO SPECIFIC REQUIREMENTS OF TOWN IN WHICH PROJECT IS LOCATED.
 - 2) PROCESSED AGGREGATE AND BITUMINOUS CONCRETE PAVEMENT TO BE PER CURRENT D.O.T. SPECIFICATION.

Drawn By: LRS/LMM

Date: 3/3/17

Approved by:

[Signature]
THINK DEVELOPER SERVICES COORD.
THINK WGR PROJECT ENGINEERING

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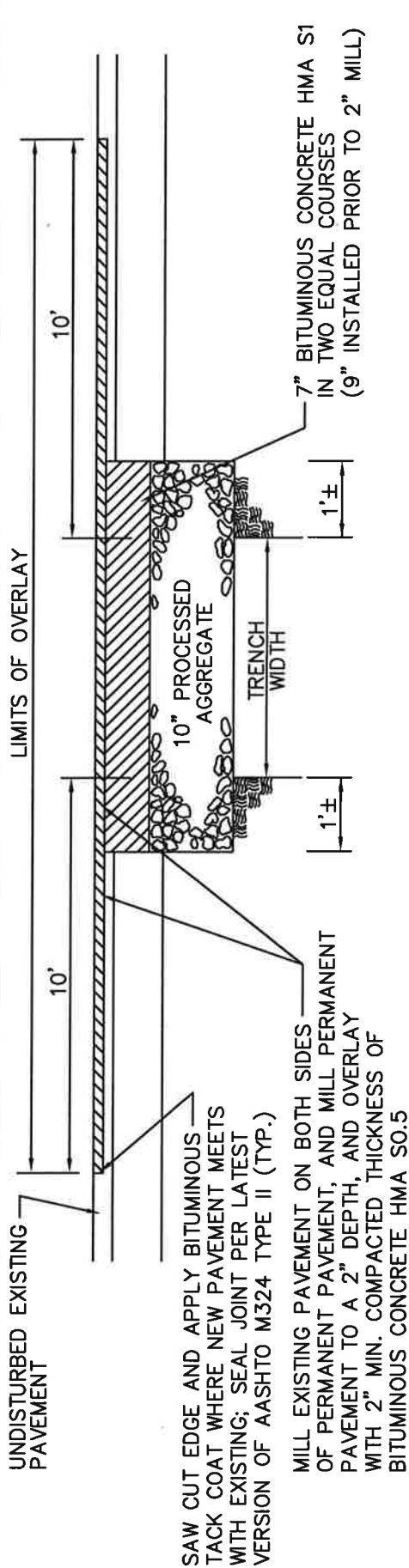
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Drawing Number

SD-9

BU Number -
Sheet 1 of 1

PAVEMENT DETAILS STATE AND TOWN ROADS



LIMITS OF OVERLAY

10'

10.

SAW CUT EDGE AND APPLY BITUMINOUS TACK COAT WHERE NEW PAVEMENT MEETS WITH EXISTING; SEAL JOINT PER LATEST VERSION OF AASHTO M324 TYPE II (TYP.)

MILL EXISTING PAVEMENT ON BOTH SIDES OF PERMANENT PAVEMENT, AND MILL PERMANENT PAVEMENT TO A 2" DEPTH, AND OVERLAY WITH 2" MIN. COMPACTED THICKNESS OF BITUMINOUS CONCRETE HMA SO.5

7" BITUMINOUS CONCRETE HMA S1
IN TWO EQUAL COURSES
(9" INSTALLED PRIOR TO 2" MILL)

TRENCH

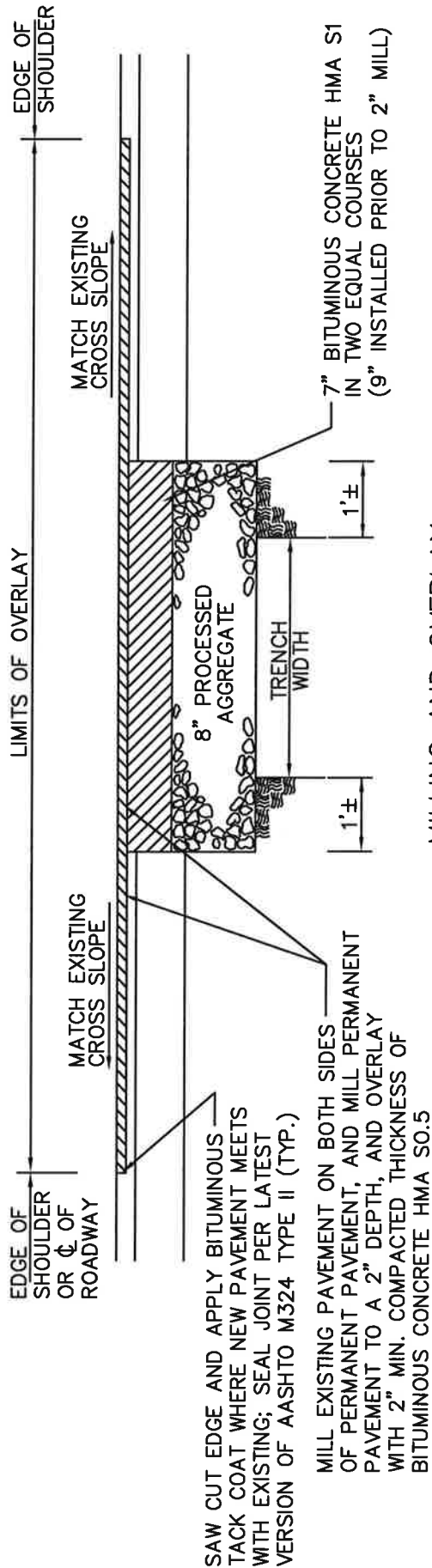
TRENCH

三

三

MILLING AND OVERLAY

TRENCHES PERPENDICULAR TO EDGE OF PAVEMENT



LIMITS OF OVERLAY

SAW CUT EDGE AND APPLY BITUMINOUS TACK COAT WHERE NEW PAVEMENT MEETS WITH EXISTING; SEAL JOINT PER LATEST VERSION OF AASHTO M324 TYPE II (TYP.)

MILL EXISTING PAVEMENT ON BOTH SIDES OF PERMANENT PAVEMENT, AND MILL PERMANENT PAVEMENT TO A 2" DEPTH, AND OVERLAY WITH 2" MIN. COMPACTED THICKNESS OF BITUMINOUS CONCRETE HMA SO.5

7" BITUMINOUS CONCRETE HMA S1
IN TWO EQUAL COURSES
(9" INSTALLED PRIOR TO 2" MILL)

8" PROCESSED

PROCES

MATCH EXISTING
CROSS SLOPE

MATCH EXISTING
CROSS SLOPE

EDGE OF SHOULDER

MILLING AND OVERLAY TRENCHES PARALLEL TO EDGE OF PAVEMENT

TRENCHES PARALLEL TO EDGE OF PAVEMENT

Drawn By: LRS/LMM

Date: 3/3/17

Approved by

Time Developer Services Coord.

TIME DEVELOPER SERVICES COORD.

Title: MGR. PROJECT ENGINEERING

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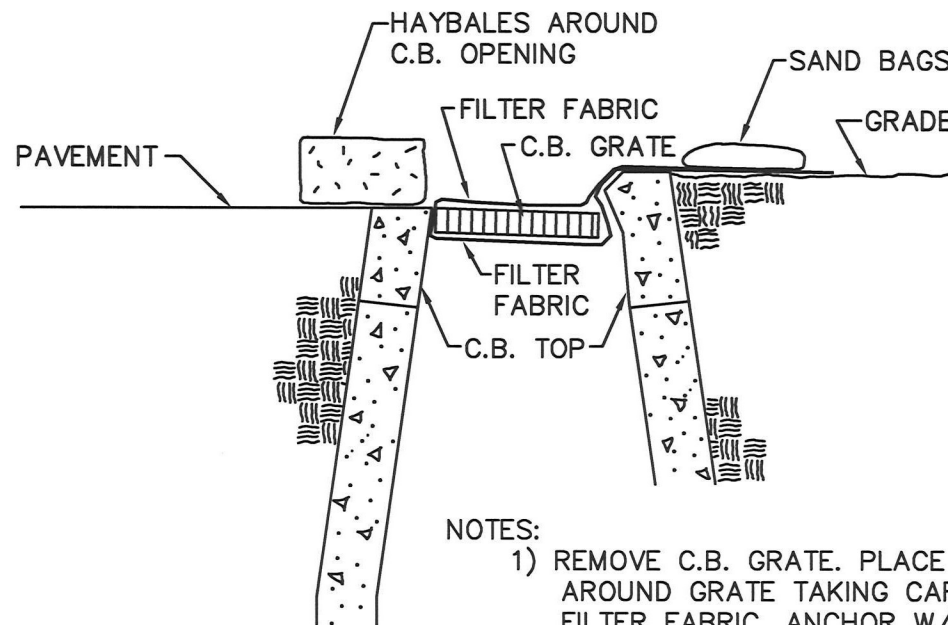
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Drawing Number

SD-9A

BU Number --
Sheet 1 of 1

PAVEMENT DETAILS STATE AND TOWN ROADS



NOTES:

- 1) REMOVE C.B. GRATE. PLACE FILTER FABRIC AROUND GRATE TAKING CARE NOT TO DAMAGE FILTER FABRIC. ANCHOR W/SAND BAGS. PLACE HAY BALES IF REQUIRED.
- 2) SILT BARRIER REQUIRED ON ALL CATCH BASINS IN WORK AREA.

Drawn By: LLO

Date: 4/2/03

Approved by:

Title:

CHIEF OF ENGINEERING

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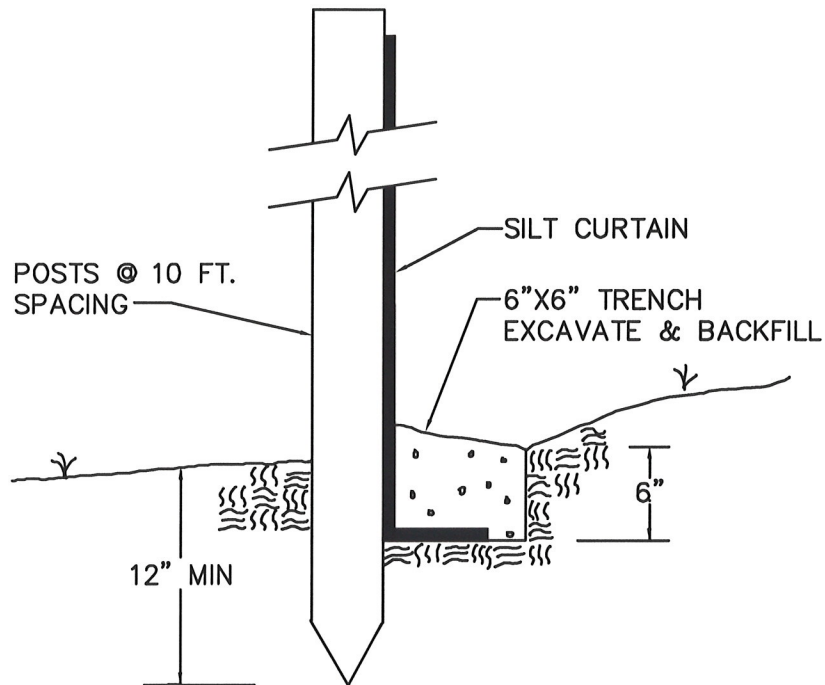
CATCH BASIN SILT BARRIER DETAIL

Scale: NTS

Drawing Number

SD-10

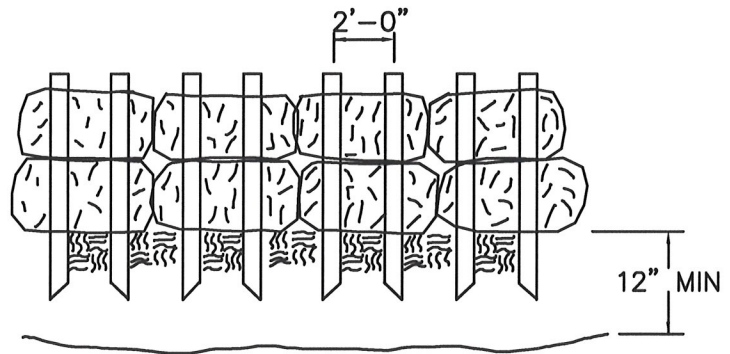
BU Number -
Sheet 1 of 1



SILT FENCE DETAIL
NOT TO SCALE

NOTES:

1. EXCAVATE TRENCH.
2. SECURE HAYBALES WITH TWO (2) STAKES.
3. BACKFILL AND COMPACT THE EXCAVATED SOIL ON THE UPHILL SIDE OF THE BARRIER.



HAY BALE BARRIER DETAIL
NOT TO SCALE

Drawn By: LRS

Date: 4/2/03

Approved by:

TITLE: CHIEF OF ENGINEERING



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**EROSION & SEDIMENT
CONTROL
DETAILS**

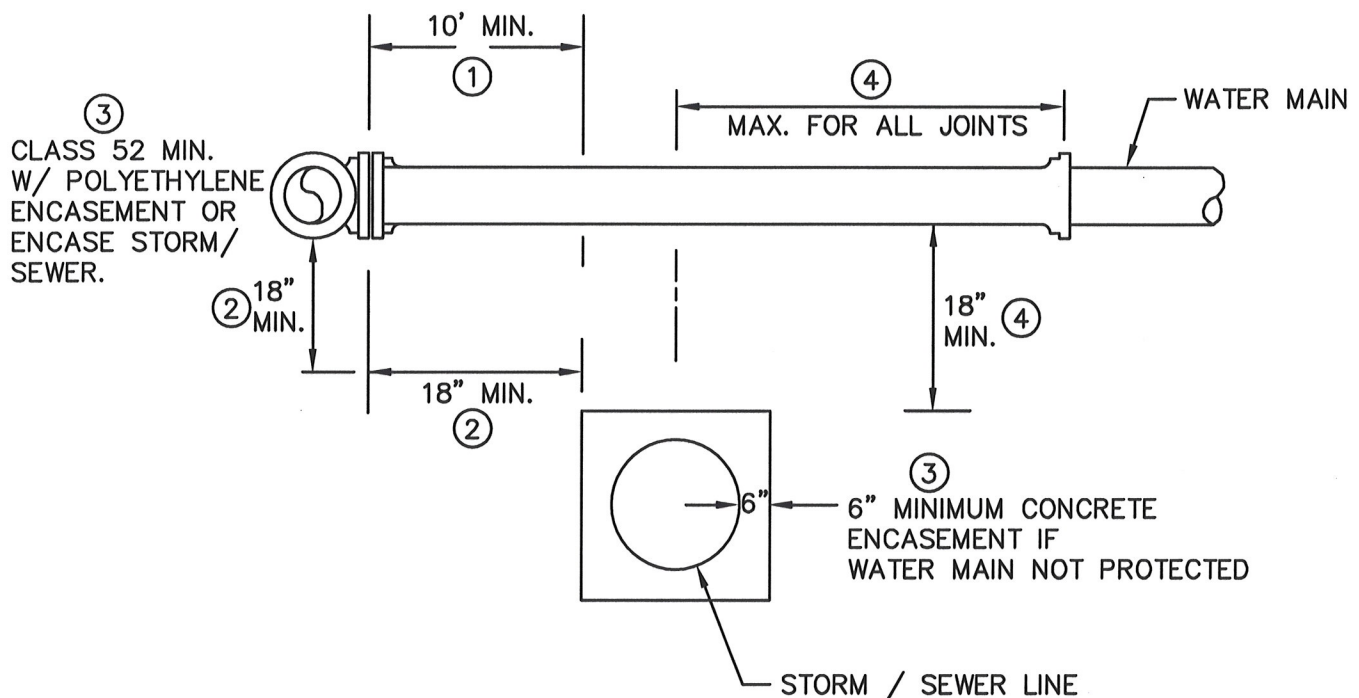
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SD-11

BU Number -
Sheet 1 of 1

- ① WHENEVER POSSIBLE MAINTAIN A MINIMUM 10' SEPARATION FROM GRAVITY STORM OR SEWER LINES. ALWAYS MAINTAIN A MINIMUM 10' HORIZONTAL SEPARATION FROM FORCE SEWER MAIN.
- ② IF 10' SEPARATION IS NOT POSSIBLE MAINTAIN A MINIMUM OF 18" HORIZONTAL SEPARATION WITH BOTTOM OF WATER MAIN A MINIMUM 18" ABOVE TOP OF STORM OR SEWER LINE
- ③ IF MINIMUM SEPARATION IS NOT POSSIBLE USE A MINIMUM CLASS 52 DUCTILE IRON PIPE WITH POLYETHYLENE ENCASEMENT, OR CONCRETE ENCASEMENT OF GRAVITY LINE
- ④ WHEN CROSSING GRAVITY LINES MAINTAIN A MINIMUM 18" VERTICAL SEPARATION WITH JOINTS SPACED AS FAR AS POSSIBLE FROM GRAVITY LINES



SEPARATION FROM
STORM AND SEWER LINES
DETAIL
NTS

Drawn By: LRS

Date: 4/27/07

Approved by:

Title:

SENIOR ENGINEER



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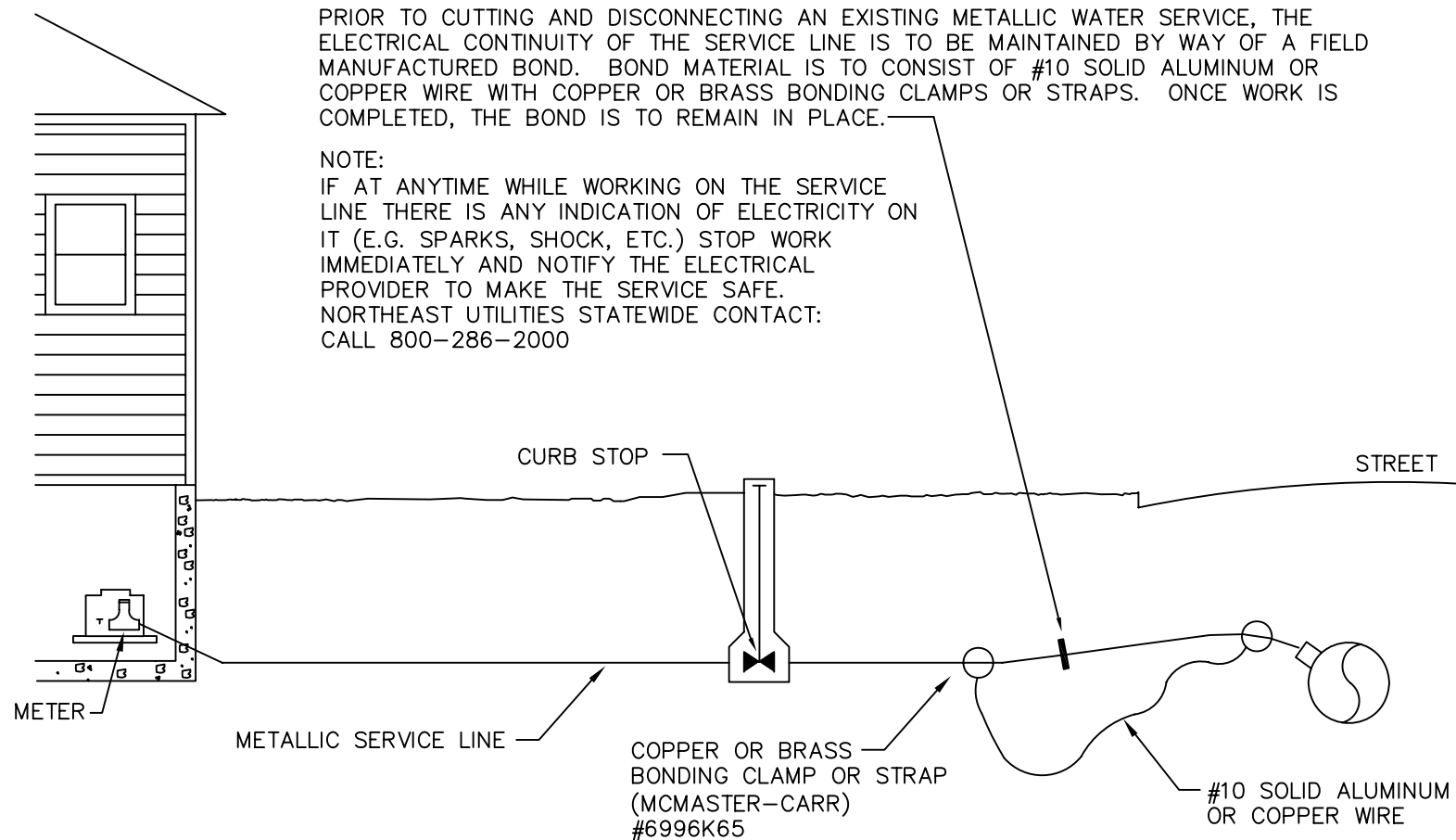
**SEPARATION FROM
STORM AND SEWER LINES
DETAIL**



Scale: NTS

Drawing Number

SD-22

BU Number -
Sheet 1 of 1



Drawn By: CAL	 93 WEST MAIN STREET CLINTON, CT 06413-1600 www.ctwater.com	WATER SERVICE ELECTRICAL BONDING PROCEDURE	Scale: N.T.S.
Date: 11/7/07			Drawing Number
Approved by:  Title: SENIOR ENGINEER Title:			SD-23 BU Number – Sheet 1 of 1